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## SHOTGUNS AND DEADLOCKS

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# SHOTGUNS AND DEADLOCKS

CLAUDIA M. LANDEO AND KATHRYN E. SPIER*

## Abstract

The process of resolving business deadlocks is time consuming and expensive, typically requiring the services of lawyers, financial experts and judges. Prolonged resolution processes, cost-inefficient administration of those processes, and inequitable outcomes impose high monetary and non-monetary costs on the parties themselves and on society as a whole.

Asset valuation, which is required to complete the transfer of assets in a business divorce, can pose particular problems for closely-held businesses. In contrast to publicly-traded companies with active markets for equity ownership, closely-held companies may be very difficult for outsider investors and appraisers to evaluate. The economic value of closely-held businesses is often intertwined with the human capital of the founders, their relationships with business associates (including key suppliers and customers), and their tacit business knowledge. The true economic value of closely-held businesses may not be fully reflected in the official business documents and financial statements; instead, the best wisdom concerning the value of the business may lie in the minds of the business owners themselves.

This article studies business deadlocks and their resolution. We advance a proposal to reform the way that courts resolve business deadlocks and value business assets. Specifically, we argue that Shotgun mechanisms, where the courts mandates one owner to name a single buy-sell price and compels the other owner to either buy or sell shares at the named price, should play a larger role in the judicial management

of business divorce. Since the party proposing the offer may end up either buying or selling shares, the party has an incentive to identify and name a fair price. In addition, inefficient delays and administration cost associated with external appraisers and public auctions will be avoided. Our proposal is aligned with current statutory rules and case law. General partnerships and limited liability companies (LLCs), the most commonly chosen legal entities, are the focus of this study.

We first explore the private design and implementation of Shotgun provisions. Important lessons and insights for the judicial resolution of business deadlock can be derived by studying deadlock clauses in private contracts. Although Shotgun provisions have the potential for achieving equitable, expedient, and cost-efficient outcomes, we show that these mechanisms can pose serious challenges in private contractual settings. Owners who find themselves at an informational or financial advantage have an incentive to behave opportunistically in private environments.

Second, we evaluate the properties of Shotgun mechanisms in judicial settings. We argue that the risks of opportunistic behavior are less severe in the judicial context than they are in the private context. Since courts have the ability to design the Shotgun procedure ex-post rather than ex-ante, they are often in a better position to identify the presence and nature of the asymmetries and to tailor the mechanism accordingly. Despite their obvious potential benefits, courts in the United States seldom use Shotgun mechanisms to resolve business deadlocks.

Finally, we provide experimental evidence regarding the ex-post judicial design of Shotgun mechanisms. Although our arguments are logically consistent and supported by current legal cases, field data on the use of these mechanisms is not available. We conduct a series of controlled laboratory experiments with human subjects to assess whether the court-mandated assignment of the role of the offeror to the better-informed owner will have the predicted effects. Our experimental design simulates a deadlocked business venture with two owners where only one of the two owners knew the true value of the business assets. Two different treatments are considered. In the first treatment, the better-informed owner is compelled to make buy-sell offer; in the second treatment, the less-informed owner is forced to make the buy-sell offer. Our experimental findings support our arguments: The likelihood of equitable outcomes is positively influenced by the assignment of the role of offeror to the better-informed owner. When obligated to make a buy-sell offer, the better-informed owner truthfully revealed his private information to the less-informed owner. To the best of our knowledge, ours is the first experimental study of mandatory Shotgun mechanisms where one party knows the value of the assets while the other does not.

Our analysis demonstrates that the appropriate judicial use of Shotgun mechanisms as an asset valuation procedure will serve the interests of the business parties and, more generally, the interest of society as a whole.

# Article Contents

## I. INTRODUCTION

> "The answer is easy if you take it logically.
> I'd like to help you in your struggle to be free.
> There must be [thrifty] ways to leave your lover" (Paul Simon).[1]

Like soon-to-be-married couples, future business partners often fail to plan for the possibility that their working relationship will deteriorate due to irreconcilable differences or how the business assets will be divided in the event of "divorce." As a consequence, judges are often called upon to intervene and resolve business deadlocks. Prolonged resolution processes, cost-inefficient administration of those processes, and inequitable outcomes impose high monetary and non-monetary costs on the parties themselves and on society as a whole.

*Haley v. Talcott*,[2] a case decided by the Delaware Court of Chancery in October 2004, provides an illustrative example. In 2001, Matt Haley and Greg Talcott started the Redfin Grill, a restaurant in Bethany Beach, Delaware. Talcott provided the start-up capital and Haley managed the restaurant without drawing a salary for the first year. In 2003, the parties "tied the knot" and formed Matt & Greg Real Estate, LLC, a 50/50 limited liability company. In May 2003, the LLC borrowed $720,000 from a local bank, personally guaranteed by both Haley and Talcott, and purchased the real estate beneath the Redfin Grill. The LLC leased the real estate to the restaurant at below-market rates. By late 2003, the business relationship between Haley and Talcott began to deteriorate: Talcott fired Haley from the restaurant. Haley reciprocated by sending Talcott a notice purporting to revoke the lease between the Matt & Greg LLC and the restaurant. Because the LLC required unanimity for business decisions, Haley could not introduce any change in the LLC's business without the Talcott's agreement: They were deadlocked.

Eschewing the exit provision that he and Talcott had included in their LLC operating agreement, Haley sued for the judicial dissolution of Matt & Greg Real Estate, LLC. Vice Chancellor Strine found that "the exit mechanism fail[ed] as an adequate remedy for Haley" because it did not release Haley from the personal guaranties regarding the mortgage loan. The Delaware court ruled that judicial dissolution of the LLC was the appropriate remedy:[3]

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[1] *Paul Simon* (1975), 50 Ways to Leave Your Lover, on STILL CRAZY AFTER ALL THESE YEARS (Warner Bros., 1975) (edited text in brackets, *50* was replaced with *thrifty*).

[2] 864 A.2d 86 (Del. Ch. 2004).

[3] §18-802 of the Delaware Limited Liability Company Act provides: "On application by or for a member or a manager, the Court of Chancery may decree dissolution of a limited liability company whenever it is not reasonably practicable to carry on the business in conformity with a limited liability company agreement." Note that the exit provision did not

> I find that it is not reasonably practicable for the LLC to continue to carry on business in conformity with the LLC Agreement. The parties shall confer and, within four weeks, submit a plan for the dissolution of the LLC. The plan shall include a procedure to sell the Property owned by the LLC within a commercially reasonable time frame. Either party may, of course, bid on the Property.

Business deadlocks emerge when disagreement between the parties regarding a fundamental business policy cannot be resolved due to the absence of majority vote or unanimity. In organizations with an even number of owners, especially those with just two owners, deadlock can be a very serious problem. Resolving these bitter business feuds can be an arduous, time-consuming, and expensive process involving the services of lawyers, expert witnesses, appraisers, and judges.[4] The resolution of business deadlock in unincorporated business associations might involve the dissociation of joint owners or the dissolution of the business entity. The completion of the dissociation or dissolution procedure requires the buyout of the dissociated owner by the other owners or the sale of the business assets, respectively. Asset valuation, which is necessary to complete the transfer of assets, is a critical aspect of this process.

Placing a dollar value on the assets of a closely-held business organization can be a very tricky matter. In contrast to publicly-traded companies with active markets for equity ownership and the scrutiny of outside investors, it is often very difficult for outsiders to evaluate the operations and business opportunities of closely-held firms. The economic value of these businesses is often intertwined with the human capital of the founders, their personal relationships with business associates (suppliers and buyers), and the tacit business knowledge they possess. Thus, the value of these closely-held businesses may not be fully reflected in the official business documents or financial statements. Instead, the best knowledge about the value of the business assets may reside in the minds of the business owners themselves.

This article studies business deadlocks and their resolution. We advance a proposal to reform the way that courts resolve business deadlocks and divide the assets between business owners. Specifically, we argue that Shotgun mechanisms, where the court mandates one owner to name a single buy-sell price and compels the other owner to either buy or sell shares at that named price,[5] should play a larger role in the judi-

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state that any member dissatisfied with the *status quo* must break an impasse by exit rather than a suit for dissolution.

[4] Other costs might include the distraction of the managers and employees.

[5] *Damerow Ford Co. v. Bradshaw*, 876 P.2d 788 (Or. App. 1994), provides an example of the use of this terminology. These provisions are also called Russian roulette agreements, *Delaney v. Georgia-Pacific Corp.*, 601 P.2d 475 (Or. App. 1979), put-call options, *Resolution Trust Corp. v. Residential Developers Fund Partners*, 1991 WL 193363 (E.D. Pa, Sept. 17, 1991), Texas Shootouts, *RDO Foods Co. v. U.S. Int'l, Inc.,* 194 F. Supp. 2d 962 (D.N.D.

cial resolution of business deadlock. These mechanisms represent an application of the classic cake-cutting procedure: One member *cuts the cake* (names a price) and the other member *chooses his or her piece* (buys or sells shares at that price).[6] Since the party proposing the offer may end up either buying or selling shares, the party has an incentive to identify and name a fair price. Thus, equitable outcomes are achieved without

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2002), or simply buy-sell mechanisms, *Universal Studios Inc. v. Viacom Inc.*, 705 A.2d. 579 (Del. Ch. 1997).

[6] See Steven Brams & Alan Taylor, FAIR DIVISION: FROM CAKE-CUTTING TO DISPUTE RESOLUTION (1996), for a survey of cake-cutting mechanisms. Articles in the legal literature have explored the general benefits of self-valuation, including cake-cutting mechanisms. See, for instance, Saul Levmore, *Self-Assessed Valuation Systems for Tort and Other Law*, 68 VA. L. REV. 771 (1982); Ian Ayres & Eric Talley, *Solomonic Bargaining: Dividing a Legal Entitlement to Facilitate Coasean Trade*, 104 YALE L.J. 1027 (1994); Michael Abramowicz, *The Law-And-Markets Movement*, 49 AM. U. L. REV. 327 (1999); and, Lee Fennell, *Revealing Options*, 118 HARV. L. REV. 1399 (2005). In the economics literature, Richard W. Brooks, Claudia M. Landeo, & Kathryn E. Spier, *Trigger Happy or Gun Shy? Dissolving Common-Value Partnerships with Texas Shootouts*, 41 RAND J. ECON. 649 (2010), study theoretically and experimentally non-mandatory shotgun mechanisms in a common value setting with asymmetric information. They demonstrate that owners eschew buy-sell offers in favor of simple offers to buy or to sell shares and bargaining failures arise. Vincent P. Crawford, *A Game of Fair Division*, 44 REV. ECON. STUD. 253 (1977), assesses the game-theoretic properties of the mandatory "divide-and-choose" method. He shows that the allocations generated by these mechanisms are "envy-free" in the sense that neither party prefers the allocation received by the other, but they do not necessarily satisfy Pareto efficiency or equity. Vincent P. Crawford, *A Self-Administered Solution of the Bargaining Problem*, 47 REV. ECON. STUD. 385 (1980) and *A Procedure for Generating Pareto-Efficient Egalitarian-Equivalent Allocations*, 47 ECONOMETRICA 49 (1979), proposes two procedures for overcoming these deficiencies: Setting the offeree's payoff in case of rejection equal to a fair division (to achieve efficiency) and auctioning the role of the offeror (to achieve equity). In a common value context with independent private signals, John Morgan, *Dissolving a Partnership (Un)Fairly*, 23 ECON. THEORY 909 (2003), shows that these mechanisms favor the receiver and are unfair. An arbitrator can implement the fair outcome by choosing one partner to name a price and then flipping a coin to determine who buys and who sells. Using a mechanism-design approach, R. Preston McAfee, *Amicable Divorce: Dissolving a Partnership with Simple Mechanisms*, 56 J. ECON. THEORY 266 (1992), studies partnership dissolution mechanisms in an independent private values environment. He shows that the person receiving the buy-sell offer is in a relatively advantageous position, and that these mechanisms may result in inefficient outcomes. Peter R. Cramton, Robert Gibbons, & Paul Klemperer, *Dissolving a Partnership Efficiently*, 55 ECONOMETRICA 613 (1987), explore alternative partnership dissolution mechanisms, such as a simultaneous sealed-bid auction where the partner with the high bid gets the partnership asset at a price equal to a pre-determined combination of the two bids. In a recent theoretical work, Maria A. de Frutos & Thomas Kittsteiner, *Efficient Partnership Dissolution under Buy-Sell Clauses*, 39 RAND J. ECON. 184 (2008), argue that the inefficiency of buy-sell mechanisms (R. Preston McAfee, 1992) is mitigated if the parties bid to determine the offeror. Philippe Jehiel & Ady Pauzner, *Partnership Dissolution with Interdependent Values*, 37 RAND J. ECON. 37 (2006) 1, and Karsten T. Fieseler, Thomas Kittsteiner, & Benny Moldovanu, *Partnerships, Lemons, and Efficient Trade*, 113 J. ECON. THEORY 223 (2003), analyze the partnership dissolution problem in settings characterized by interdependent values and asymmetric information. They show that efficiency is even harder to achieve in these settings. See also Benny Moldovanu, *How to Dissolve a Partnership*, 158 J. INST. & THEORETICAL ECON. 66 (2002), Deborah Minehart & Zvika Neeman, *Termination and Coordination in Partnerships*, 8 J. ECON. & MGMT. STRATEGY 191 (1999), and Jonathan Levin & Steven Tadelis, *Profit Sharing and the Role of Professional Partnerships*, 120 QUART. J. ECON. 131 (2005).

the administration costs and delays associated with external appraisers and public auctions[7] We show that our proposal is aligned with current statutory rules and case law. General partnerships and limited liability companies (LLCs), the most commonly chosen legal entities,[8] are the focus of this study.[9]

We begin the construction of our arguments by exploring *privately-contracted Shotgun provisions*.[10] These mechanisms have become increasingly common and practically boilerplate clauses in certain business areas including real estate joint ventures. Important lessons and insights for the judicial resolution of business deadlock are derived from our analysis of the private design and implementation of Shotgun clauses. By studying the ways that these provisions are drafted and implemented in private contracts, and identifying their shortcomings in private contractual settings, we gain deeper understanding of the proper use of Shotguns as a judicial resolution mechanism.

Our analysis demonstrates that Shotgun mechanisms have several desirable properties. First, under the right circumstances, the Shotgun mechanism leads to a *fair* and *equitable* division of the assets. Since the party making the offer may end up on either side of the transaction, the incentive to make a "low-ball offer" is eliminated. In his opinion in *Valinote v. Ballis*,[11] Judge Easterbook states that "The possibility that the person naming the price can be forced either to buy or to sell keeps the first mover honest."

Second, Shotgun mechanisms are *expedient*. In contrast to standard negotiations where there are offers and counteroffers, one party can unilaterally trigger the Shotgun provision and force the timely transfer of assets: Once the electing member gives notice and names a price, the notified member must respond within a specific number of days and is compelled to either buy or sell his stake in the company. This feature of Shotgun clauses might be of particular value in deadlock situations,

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[7] An outcome is said to be "equitable" if the allocation of value between the owners accurately reflects the ownership stakes stipulated in the business agreement.

[8] According to Professor Bainbridge, in the year 2001, general partnerships and limited liability companies represented seventy-nine percent of the total business entities in the U.S. (IRS data). See STEPHEN M. BAINBRIDGE, AGENCY, PARTNERSHIPS & LLCS (2004). Although the focus of this study is on partnerships and LLCs, this mechanism is also useful for closely-held corporations for which asset markets might not be available.

[9] Under the Uniform Partnership Act (UPA, 1914), the Revised Uniform Partnership Act (RUPA, 1997), and the law of most states, joint ventures are governed by partnership law. Courts generally apply the law of partnerships to joint ventures (*Paragon Bldg. Corp. v. Bankers Trust Co.,* 567 P.2d 1216, 1217 (Ariz. Ct. App. 1977); *Greenup v. Hewett*, 235 S.W.2d 1000, 1002 (Ky. App. 1951); *Simpson v. Richmond Worsted Spinning Co.*, 145 A. 250, 254 (Me. 1929); *Hagerman v. Schulte*, 181 N.E. 677, 681 (Ill. 1932); *Bank of California v. Connolly*, 36 Cal. App. 3d 350, 364 (1973)). Therefore, the analysis presented here also applies to the case of joint ventures.

[10] The model real estate development operating agreement recently published by ABA includes a Shotgun provision (MODEL REAL ESTATE DEVELOPMENT OPERATING AGREEMENT WITH COMMENTARY, 63 BUS. LAW, 385, (2007-2008)). See Section IIIB.

[11] *Valinote v. Ballis*; 295, F3d. 666 (Ill. 2002).

where there are likely to be significant psychological and behavioral barriers to meaningful bilateral negotiations. If the two parties have irreconcilable differences, and are not on speaking terms, it may be difficult to get both parties to the proverbial bargaining table. One party may be willing to negotiate, but the other may stubbornly refuse to cooperate. With a Shotgun clause, only one of the two parties needs to be willing to participate in setting the price for the sale since, once triggered (i.e., once a proposal has been made by the offeror), the provision compels the participation of the offeree.

Third, the Shotgun mechanism is *cost-efficient* because it does not require the participation of a costly outside appraiser or auctioneer. Note that Shotgun mechanisms might serve as an important backdrop or outside option for decentralized negotiations between the parties as well.[12]

Under the wrong conditions, however, we show that Shotgun mechanisms can backfire. *Asymmetries* between the business owners in terms of information, capabilities, and financial resources might elicit unwanted strategic behavior and opportunism, and hence lead to inequitable and cost-inefficient outcomes. Suppose for example, that one party were to become disabled or otherwise unable to manage the company without the active participation of the other party. The more capable party might manufacture a deadlock and strategically trigger the Shotgun provision in order to buy out the disadvantaged party at a low price. Similar opportunistic behavior can arise when one party is in a disadvantaged financial situation, or when one party lacks the information to properly assign value to the business assets. Although these adverse effects can certainly be mitigated by *ex-ante* contractual agreement between the parties, some residual risk associated with these provisions will inevitably remain.

We proceed with the construction of our arguments by studying the properties of *judicially-implemented Shotgun mechanisms*. While the risks associated with asymmetries are relevant in the judicial context, just as they are in private contractual settings, these risks will generally be less severe when the Shotgun mechanism is designed and implemented by a judge. Since courts have the ability to design the Shotgun procedure ex-post rather than ex-ante, they often are in a better position to identify the presence and nature of the asymmetries and to tailor the Shotgun mechanism accordingly. Specifically, courts can (1) avoid the negative effects of asymmetric information by assigning the role of offeror to the better-informed owner; (2) attenuate the shortcomings of asymmetric financial resources by providing the parties with sufficient

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[12] Shotgun provisions typically give the owners discretion over whether to trigger the clause. Thus, these clauses do not preclude the parties from returning to the negotiation table. However, the Shotgun clause might influence these negotiations and induce more equitable outcomes. If there were no Shotgun clause, then the parties would be negotiating in the shadow of either continued deadlock, which would drain the business organization of ongoing value, or the prospect of judicial intervention which may involve significant direct expense and possibly inefficient resolution (e.g. piecemeal liquidation).

time to arrange for financing of the buy-sell operations; and, (3) offset the weaknesses related to asymmetric capabilities by assigning the role of offeror to the less-capable owner. Moreover, if Shotgun mechanisms become a commonly-applied valuation procedure and default remedy for the judicial resolution of business deadlock, then more equitable private outcomes will be obtained as parties will bargain in the shadow of the Shotgun mechanism and settle their differences out of court. Despite their obvious potential benefits, courts in the United States seldom use Shotgun mechanisms to resolve business deadlocks. *Fulk v. Washington Service Association* provides a rare example.[13] In contrast, Canadian judges frequently apply Shotgun mechanisms when resolving business divorce. The Canadian experience demonstrates the feasibility of the implementation of our proposal.[14]

Finally, we provide *experimental evidence regarding the ex-post judicial design of Shotgun mechanisms.* Although our arguments regarding the ex-post judicial design of Shotgun mechanisms are logically consistent and supported by current legal cases, actual field data on deadlock resolution processes and outcomes is not available. Then, we conduct a series of controlled laboratory experiments with human subjects to assess whether the court-mandated assignment of the role of the offeror to the better-informed owner will have the predicted effects.[15] Our experimental design simulates a deadlocked business venture where two owners needed to divide the business assets. In contrast to the traditional cake-cutting problem, only one of the two owners knew the value of the business assets (the size of the cake). Two experimental treatments are considered. In the first treatment, the better-informed owner is compelled to make buy-sell offer; in the second treatment, the less-informed owner is forced to make the offer.

Our experimental findings support our arguments: Equitable outcomes occur more frequently when the role of offeror is assigned to the better-informed owner. When obligated to make a buy-sell offer, the better-informed owner truthfully revealed his private information to the less-informed owner. To the best of our knowledge, ours is the first experimental study of mandatory Shotgun mechanisms where one party knows the value of the assets while the other does not.

The Article is divided into four sections. Section II studies the nature of business deadlock in general partnerships and limited liability companies. It first discusses the statutory rules regarding management rights, and identifies the circumstances under which these organizations

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[13] *Fulk v. Washington Serv. Assocs.* No. 17747-NC, 2002 BL 1389 (Del. Ch. June 21, 2002). Section IV.

[14] See *Kinzie v. Dells* 2010 BCSC 1360 (Can. B.C.); *Lee v. Lee* (2002), 3 B.C.L.R. 4th 129 (Can. B.C.); *Whistler Service Park Ltd. v. Glacier Creek Development* 2005 BCSC 1942 (Can. B.C.); *Safarik v. Ocean Fisheries Ltd.*, (1996) 17 B.C.L.R. 3d 354 (Can. B.C.C.A.). See the discussion on Section IV.

[15] Our subject pool was recruited from undergraduate and graduate classes at the University of Alberta.

might encounter business deadlock. It then outlines private contractual arrangements that might help prevent deadlock. Section III analyzes the private resolution of business deadlocks. It first outlines the dissociation and dissolution procedures under the current statutory rules. It then evaluates the properties of three commonly-used valuation mechanisms, Shotgun mechanisms, private auctions, and external appraisal,[16] and identifies the circumstances under which the use of the Shotgun mechanism is recommended.[17] Section IV investigates the judicial resolution of business deadlock. It first illustrates the current court-intervention procedures. It then proposes the expanded use of the Shotgun mechanism by judges to resolve business deadlock, and demonstrates that this proposal is aligned with statutes and case law. Section V presents experimental evidence on the benefits of Shotgun mechanisms under the appropriate ex-post judicial design.

## II.  BUSINESS DEADLOCK

Business deadlocks can arise when parties have fundamental disagreements regarding essential business policies that cannot be resolved due to the absence of majority vote or unanimity. In business entities with an even number of owners, especially those with just two owners, deadlock is a potentially severe problem. The situation described in *Palmieri v. A.C. Paving Co.* is typical:[18]

> [T]here is an equal split or nearly equal split of shares and control; there is a serious and persistent disagreement as to some important questions respecting the management or functioning of the [organization]; there is a resulting deadlock; and the deadlock paralyzes and seriously interferes with the normal operations of the [organization].

Deadlock problems in general partnerships and LLCs can be generally tracked to the owners' management rights: The rights to participate

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[16]Note that the right of first refusal (ROFR) and the right of first offer (ROFO) provisions are not commonly used as business deadlock resolution clauses. Instead, these clauses are implemented as exit clauses (i.e., in cases in which one party requires to exit the organization) for reasons not necessarily related to deadlocks. Given that the focus of this study is on business deadlock situations, we abstracted from the analysis of ROFR and ROFO clauses. See *Haley v. Talcott*.

[17] The theoretical economics literature on partnership dissolution studies shotgun and auction mechanisms under more general environments than those presented here. See for instance, Richard W. Brooks, Claudia M. Landeo, & Kathryn E. Spier, *Trigger Happy or Gun Shy? Dissolving Common-Value Partnerships with Texas Shootouts*, 41 RAND J. ECON. 649 (2010), and Maria A. de Frutos & Thomas Kittsteiner, *Efficient Partnership Dissolution under Buy-Sell Clauses*, 39 RAND J. ECON. 184 (2008). For a practical guide to the economics literature on auction theory, see Paul Klemperer, *Auction Theory: A Guide to the Literature* 13 J. ECON. SURVEYS 227 (1999).

[18] *Palmieri v. A.C. Paving Co.*, (1999) 48 B.L.R. (2d) 130 (B.C.S.C.).

in the business decisions and the decision-making processes used in these organizations.

## A. *Management Rights*

Co-management is a core characteristic of partnerships. In fact, under the default rules of both the Uniform Partnership Act (UPA, 1914) and the Revised Uniform Partnership Act (RUPA, 1997),[19] each partner is entitled to the following management rights: (1) The right to know about the business operations (right to information); (2) the right to be included in the management of the business; and, (3) the right to participate in collective decisions, made in some cases by majority rule or consent,[20] and, in other cases, by unanimity rule (partner's right to veto). Under these statutes, each partner has equal decision-making power (i.e., voting rights are assigned on a per capita basis).[21]

Disagreements may arise in the course of making ordinary business decisions or in circumstances involving decisions regarding extraordinary (i.e., highly unusual) business policies.[22] Under both UPA and RUPA default rules, disagreement regarding ordinary matters is resolved by majority rule. However, the approval of extraordinary matters

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[19] Case law is extremely important in case of partnerships. RUPA and UPA both expressly rely on case law to fill statutory gaps. The UPA provides that "In any case not provided for in this act the rules of law and equity, including the law merchant shall govern" (UPA, §5). For instance, Professors Alan R. Bromberg and Larry E. Ribstein, BROMBERG AND RIBSTEIN ON PARTNERSHIP (2012), argue that "The courts have added a common law gloss to UPA §38 by granting a continuation right even in situations that seem to call for liquidation under §38(1)." (See *Nicholas v. Hunt*, 541 P.2d 820 (Or. 1975).) Similarly, RUPA states that, "Unless displaced by particular provisions of this [Act], the principles of law and equity supplement this [Act]" (RUPA § 104(a)).

[20] The majority rule might be implemented through vote or consent. As Professor Kleinberger explains, " 'Vote' implies a more formal procedure than 'consent' ... The MERRIAM WEBSTER DICTIONARY (3d. ed. 1974) defines 'consent' as 'to give assent or approval' and 'vote' as 'a usually formal expression of opinion or will in response to a proposed decision.' " *See* DANIEL S. KLEINBERGER, AGENCY, PARTNERSHIPS, AND LLCS (2012). *National Biscuit Company v. Stroud*, (106 S.E. 2d. 692 (N.C. 1959) provides an illustration of the majority rule requirement. Stroud and Freeman formed a partnership to operate a grocery store. In late 1955, Stroud informed National Biscuit that he would not be personally liable for any more bread National Biscuit sold to the store. During February 1956, Freeman ordered more bread. On February 25, 1956, Stroud and Freeman dissolved their partnership, with all assets going to Stroud. National Biscuit, not having been paid for the bread ordered by Freeman, sued Stroud. Because there was no majority vote of the partners to terminate Freeman's authority to buy bread, Stroud's unilateral act was ineffective. The partnership therefore was bound by Freeman's orders. See also *Summers v. Dooley*, 481 P.2d 318 (Idaho 1971).

[21] By default, voting or consent is *per capita* (per person), regardless of how much: (i) Each partner has contributed to the partnership, and (ii) each partner works in the partnership's business. See UPA §18(e) and (h); RUPA §401(f) and (j).

[22] Under both UPA and RUPA, extraordinary decisions refer to major changes to the nature of the partnership's business, decisions to increase substantially the size of the business (where that increase requires a significant increase in the liability exposure of each partner), changes in the standards of admitting new partners or expelling old partners, among others.

requires unanimity.[23] Importantly, evidence that a proposed change would benefit the partnership would not change the majority vote or unanimity requirement. Case law holds that, absent majority vote or unanimity, the partner proposing the (beneficial) change still loses. As Professor Lindley argues, "[I]f the partners are equally divided, those who forbid a change must have their way."[24] Even evidence that the dissenting partner benefits personally from resisting the proposed change would not be enough to change the legal results.

LLCs state statutes are not uniform.[25] In most state statutes, managerial rights are similar to those outlined in the partnership law: The management default rule is the member-managed LLC, i.e., it vests management in the LLC's members.[26] Similarly, the approval of ordinary and extraordinary matters requires majority and unanimity, respectively. In terms of voting rights, some states allocate voting power in proportion to the contributions made and not returned, that is, pro rata by financial interest. Other states allocate voting rights on a per capita basis (similar to partnerships). ULLCA §404(a)(1) also follows the per capita basis approach.

### B. Preventing Business Deadlock

Because most statutory management rules are default rules, it is possible to adapt them to the specific needs of the business.[27] Common modifications of the UPA and RUPA management rules include: (1) Delegating to one partner or a committee some or all decisions regarding busi-

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[23] Under UPA §9(3), unless a partnership agreement provides otherwise, acts that will make it impossible to carry on the ordinary business of the partnership require unanimous approval. UPA §18(h) provides a more general rule for solving disagreements not covered by UPA §9(3): "Any difference arising as to ordinary matters connected with the partnership business may be decided by a majority of the partners; but no act in contravention of any agreement between the partners may be done rightfully without the consent of all the partners." UPA §18(h), however, fails to include matters that are not ordinary (i.e., highly unusual) but do not involve acts in contravention of the partnership agreement. Case law resolves this omission by generally holding that extraordinary changes require unanimous consent. Similarly, under RUPA §401(j): "A difference arising as to a matter in the ordinary course of business of a partnership may be decided by a majority of the partners. An act outside the ordinary course of business of a partnership and an amendment to the partnership agreement may be undertaken only with the consent of all of the partners."

[24] Walter, B. Lindley, A TREATISE ON THE LAW OF PARTNERSHIP, Ch. II, §III, ¶24-8, 403 (1924). The opinion of this scholar was cited by the court in *Summers v. Dooley*, 481 P.2d 318, 321 (Idaho 1971). *See* STEPHEN M. BAINBRIDGE, AGENCY, PARTNERSHIPS & LLCs (2004).

[25] The Uniform Limited Liability Company Act (ULLCA) was not promulgated until 1996, by which time many states had already adopted LLC codes. As a result, the ULLCA does not provide a common ground for uniformity. *See* STEPHEN M. BAINBRIDGE, AGENCY, PARTNERSHIPS & LLCs (2004).

[26] ULLCA and many state statutes also recognized the case of manager-managed LLCs. Most statutes limit the right of non-managing members in a manager-managed LLC to act in the business. See also ULLCA §301(a).

[27] Most of these rules are applicable only in the absence of a contrary agreement among the partners. See, for instance, UPA §18, RUPA §103(a), and ULLCA §103(a).

ness management; (2) changing the one partner/one vote rule by weighting each partner's rights to vote or consent in proportion to capital contribution or allocating more votes to partners who work full-time in the organization; and, (3) changing the unanimous consent requirements.[28]

However, the flexibility of the default rules is not unlimited. UPA, RUPA, and ULLCA include restrictions on management restructure agreements that might affect the partner's right to information. Professor Kleinberger argues that modifications of these fundamental obligations might be subject to strong judicial scrutiny.[29] Similarly, although RUPA §103(a) recognizes that the relations among the partners and between the partners and the partnership are governed by the partnership agreement, RUPA §103(b)(2) also sets limits to the power of these agreements.[30] Importantly, transaction costs related to modifications of default management rules in a two-party 50/50 partnership or LLC might be extremely high.[31]

## III. LESSONS FROM PRIVATE CONTRACTING

In closely-held businesses, such as general partnerships and LLCs, an owner who is dissatisfied with the firm's business performance or the behavior of the other owner might need to pursue dissociation or dissolution.[32]

The completion of privately-implemented dissociation or dissolution procedures involves the buyout of the dissociated owner by the other owners or the sale of the business assets, respectively. These processes require the valuation of the business assets. In closely-held businesses, for which asset markets might not be available, asset valuation can be a particularly difficult task. By including a buy-sell clause in their business agreement ex-ante, the owners can greatly facilitate the process of asset valuation ex-post.

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[28] By, for instance, allowing the admission of new partners on a two-thirds vote of the current partners, or by approval of a management committee. *See* DANIEL S. KLEINBERGER, AGENCY, PARTNERSHIPS, AND LLCS (2012).

[29] "A restriction is most likely to be upheld if it: (i) has some important justification; (ii) is not overbroad; and (iii) does not leave the partners who lack access vulnerable to oppression." *See* DANIEL S. KLEINBERGER, AGENCY, PARTNERSHIPS, AND LLCS (2012).

[30] It states that the partnership agreement may not "unreasonably restrict the right of access to books and records under Section 403(b)." Similar restrictions are provided by ULLCA §103(b).

[31] A party with a 50% ownership may refuse a private agreement establishing a mechanism that deviates from the 50/50 voting rights.

[32] Suits among owners are discouraged by doctrines such as the business judgment rule and the co-principal doctrine. The parties might also specify in their business agreement that a third party, such as an arbitrator or another person will serve as a tie-breaker in case of deadlock. Note that the agreement on a specific tie-breaker might involve high transaction costs.

### A. *Private Resolution: Dissociation and Dissolution*

#### 1. *General Aspects*

This section discusses the statutory basis for privately-implemented dissociation and dissolution processes in event of business deadlock.

UPA and RUPA recognize the partner's power to dissolve the partnership. Under UPA, the dissociation of a partner (by voluntary withdrawal or expulsion) always triggers the dissolution of the business entity.[33] After dissolution, the partnership must be wound up, absent agreement among the partners to carry on the business.[34] The winding up process prescribes that the firm's assets will be sold and the proceeds distributed to the partners.[35] Hence, the partners are entitled to the public sale of assets, either as a going concern or as a piecemeal liquidation.[36] In case of dissolution with business continuation, on the other hand, the continuation of the business activities in the hands of some of the original owners in the post-dissolution period is achieved by implementing buyout processes in which the other partners buy the assets of the dissociated partner.[37]

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[33] In case of an at-will partnership (i.e., a partnership in which the parties have not agreed to continue the partnership until the end of some particular term or undertaking), the parties have the power and the right to dissociate, causing dissolution). In case of a term partnership (i.e., a partnership established for a definite term or for a specific purpose), a partner can still dissolve the firm before the term expires by express action. However, such a dissolution is regarded as wrongful (the partner has the power but not the right to dissociate) and subjects the wrongful dissolver to damages for breach of the partnership agreement, and also results in certain limitations on his or her ability to participate in the winding up process (UPA §31(2)). The remaining partners have the right to continue business even if the partnership agreement does not so provide. In such a case, however, they must either pay the withdrawing partner the fair value of his or her share in the partnership, minus any damages caused by his or her breach of the agreement, or post a bond for that amount with the court. *See* DANIEL S. KLEINBERGER, AGENCY, PARTNERSHIPS, AND LLCS (2012).

[34] This is the case of dissolution without business continuation. The dissolution of a partnership terminates all authority of all partners to transact business on behalf of the firm except for such business as is necessary to wind up the partnership.

[35] The distributions are generally made in cash unless the partners agree otherwise.

[36] If the other parties refuse, the partner is entitled to a judicial sale of the business under court supervision. Absent bad faith or breach of fiduciary duty, one or more of the partners are free to bid on the partnership's assets at such a sale. See *Prentiss v. Sheffel*, 513 P.2d 949 (Ariz.App. 1973). After the business is liquidated, settling up amongst the partners is controlled by UPA §18(a) and §40.

[37] Under three situations, the business of the partnership may be continued post-dissolution: (1) In case the partnership has been wrongfully dissolved, the non-dissolving partners may elect to buy out the dissolving partner and thereafter continue the business; (2) some of the partners may purchase and use the partnership assets; and, (3) the partnership agreement may provide for the business to be continued without liquidation. Importantly, a provision authorizing continuation of the business post-dissolution does not prevent the dissolution from occurring. Instead, a new partnership is formed to which the assets of the old partnership are transferred and which assumes the liabilities of the old partnership. This provision is structured as a buy-sell agreement, pursuant to which the interest of a withdrawing partner is calculated and then paid.

Under RUPA, dissociation might occur by the express will of the partners. It might also be triggered by the occurrence of specific events stated in the partnership agreement as causing a partner's dissociation, or by a partner's expulsion pursuant to the partnership agreement. Importantly, expulsion without cause might occur if the partnership agreement permits it.[38] For instance, in *Bohatch v. Butler & Binion*,[39] the court held that "A partnership may expel a partner for purely business reasons ... to protect relationships both within the firm and with clients, [and] ... in order to resolve a 'fundamental schism' within the firm."[40] For most dissociation grounds, the removal of the dissociated partner does not trigger dissolution or winding up. The other partner might buy out the dissociated partner's interest (or implement a process in which each partner can buy out the other partner), and continue the business (RUPA §7).[41] In case of dissociation originated by a partner's express will to withdraw, however, the statutory rules mandate dissolution and the winding up of the business. This default rule can be modified by a buy-sell agreement.[42] Even in the absence of such provisions, the partners may waive the right to have the partnership's business dissolve and wound up by unanimous vote.[43] The partnership must be dissolved if an event occurs that is identified in the partnership agreement as causing dissolution. It also must be dissolved if all the partners agree. The RUPA's process for winding the business up in case of dissolution is similar to that under the UPA.[44]

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[38] Even if the other partners have the right by agreement or statute to expel a partner, they remain subject to the duty of good faith and fair dealing. In this context, however, the good faith and fair dealing obligation is pretty narrow in scope. Courts have upheld as valid, for example, *guillotine expulsion provisions* under which a partner may be expelled without cause and without any procedural due process. See *Holman v. Coie*, 522 P.2d 515 (Wash. 1974).

[39] 977 S.W.2d 543, 546 (Tex. 1998).

[40] If the agreement contains such a provision, bad faith is found only when there is "a wrongful withholding of money or property legally due to the expelled partner at the time he is expelled." *See Lawlis v. Kightlinger & Gray*, 562 N.E.2d 435, 443 (Ind. App. 1990). As a result, as long as the other partners pay the partner to be expelled any sums due, they are free to expel him without either good cause or even notice and hearing.

Upon dissociation of a partner, the dissociated partner's rights to participate in management of the firm terminate. The partner's fiduciary obligation to refrain from competing with the partnership terminates. The partner's other statutory fiduciary duties remain applicable only with respect to matters that arose before the disassociation or those arising in connection with the winding up of the partnership.

[41] If the parties are unable to agree on the correct valuation of the dissociated partner's interest, the dissociating partner may go to court for a judicial appraisal of the value of his interest.

[42] In this case, a denial of dissolution clause would be valid.

[43] A term partnership must be dissolved and wound up at the expiration of the specified term or completion of the specified undertaking. Wrongful dissociation triggers dissolution, unless a majority of the remaining partners agree to continue the partnership.

[44] Note that the RUPA default rules do not allow for dissolution with business continuation.

The process of dissociation and dissolution of LLCs under the ULLCA are similar to those established under RUPA. An LLC member is dissociated by withdrawal or expulsion of a member.[45] Dissociation does not necessarily lead to dissolution. If the business is to be continued without dissolution, the dissociated member's interest must be purchased by the LLC or the other members.[46] The LLC must be dissolved and its business wound up upon the occurrence of any event specified in LLC operating agreement as triggering dissolution. A vote of the members, as specified in operating agreement, can also require dissolution.[47]

### 2. *Asset Valuation*

Asset valuation, which is necessary in order to complete the transfer of assets, can be a very tricky matter for closely-held businesses. The value of a partnership or an LLC may be intimately tied to the skills and knowledge of the employees, to the business methods and corporate culture of the organization, or to its intellectual property. These sources and drivers of value are often intangible; they are not necessarily reflected the financial statements or other business documents. In these circumstances, the most accurate information about the value of the business venture may reside in the minds of the business owners themselves. The inclusion of buy-sell clauses, such as Shotgun provisions, in the ex-ante business agreements facilitates the valuation of assets and hence the completion of the dissociation and dissolution processes.

The next section discusses Shotgun provisions and alternative valuation methods including auctions and external appraisal.

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[45] ULLCA §601. Causes of dissociation can be divided into voluntary and involuntary, with almost all statutes: (1) recognizing, with regard to voluntary dissociation, that a member always had the power to dissociate by expressing the intent to do so, but the operating agreement can constrain or eliminate the right to dissociate (thereby making voluntary dissociation wrongful); and, (2) providing some grounds for involuntary dissociation, such as expulsion by unanimous consent upon the occurrence of specified grounds or as provided by the operating agreement. Dissociation ends a person's membership, which means that the person loses all governance rights in the LLC. As to the financial rights, under all LLC statutes, in the default mode, a member's financial rights are freely transferable. It is therefore possible for a member to exit an LLC by selling its interest to another member or to a nonmember. However, the transfer to a non-member does not entail the transfer of any governance rights, unless the other members decide to admit the transferee as a member. See Re-ULLCA, §502(a)(3). This generates a high risk on transferees.

[46] ULLCA §701. If they are unable to agree to a price, a judicial appraisal proceeding is available (ULLCA §702). Dissociation terminates a member's right to participate in firm business, except where the firm is to be dissolved, in which case the dissociating member is entitled to participate in the winding up process.

[47] In contrast to RUPA, under ULLCA, the unilateral withdrawal of a member does not result in dissolution. The ULLCA thus is designed to confer a corporate-like stability on the LLC by making it far harder for a member to force a dissolution and winding up than is the case in a partnership.

**B.** *Shotgun Provisions[48]*

Under a Shotgun provision, one owner names a single buy-sell price and the other owner is compelled to either buy or sell shares at that named price. One typical example is found in the operating agreement of the Omnibus Financial Group:[49]

> If for any reason any Member ('the Electing Member') is unwilling to continue to be a member of [the LLC] if another Member ('the Notified Member') is also a member of [the LLC], then the Electing Member may give the Notified Member written notice stating in such notice the value of a 1% Membership Interest ('Interest Value') whereupon the Notified Member shall, by written notice given to the Electing Member within 30 days from the date of receipt of the Electing Member's notice, elect either to purchase the Electing Member's interest in [the LLC] or to sell to the Electing Member the Notified Member's interest in [the LLC].

We first study the core properties of the Shotgun provisions under a simple scenario characterized by the absence of asymmetries between the business owners (benchmark environment). We then enrich our analysis by incorporating various empirically-relevant asymmetries. As we will see, asymmetries can lead to unwanted strategic behavior and inequitable outcomes. We discuss how private contracts might be structured to mitigate these adverse effects.

**1.** *Benchmark Environment: Symmetric Information*

Suppose that two business owners[50] with equal stakes[51] in the company are deadlocked: Irreconcilable differences in opinion, vision, personality and/or other factors, and the absence of a majority vote or unanimity is preventing the company from maintaining its operational effectiveness. If the parties remain in the deadlocked situation, the value of the business assets is $400 (in millions);[52] if, on the other hand, one party were to purchase the stake of the other, the overall value of the company

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[48] Our analysis involves numerical examples. The formal models and solutions are presented in the Appendix.

[49] *Valinote v. Ballis*; No. 00 C 3089, 2001 WL 1135871 (N.D. Ill. Sept. 25, 2001).

[50] Our analysis also holds in case of two groups of owners, with each group encompassing one or more members. In cases involving more than two owners and more than two groups, as argued by Professors Steven J. Brams, Michael A. Jones and Christina Klamler (2013), *American Mathematical Monthly*, there might not be perfect division. Importantly, according to Professors Robert Hauswald and Ulrich Hege (2009), *Mimeo, American University and HEC School of Management,* 80% of all joint ventures incorporated in the U.S. between 1985 and 2000 are two-partner joint ventures. Hence, our study is empirically relevant.

[51] See Richard W. Brooks, Claudia M. Landeo, & Kathryn E. Spier, *Trigger Happy or Gun Shy? Dissolving Common-Value Partnerships with Texas Shootouts*, 41 RAND J. ECON. 649 (2010) for a more general analysis of ownership allocation.

[52] The values used in this numerical example are expressed in millions.

would increase to $500. Thus, the deadlock is inefficient and is causing a real economic loss of $100. In our benchmark scenario, we assume that the two owners know the value of the business assets, that the owners are not financially constrained and have the resources to purchase the stake of the other, that they are equally capable of running the company alone, and that the owners are concerned only about maximizing their monetary payoffs.[53] These assumptions will all be relaxed later. We finally assume that there are no outside bidders interested in acquiring the company's assets, an assumption that renders liquidation on the open market impractical.

In this scenario, the Shotgun provision, if activated, would lead to an equal division of value between the owners. The offeror would find it in his or her self-interest to make a buy-sell offer of $250 and the offeree would be indifferent between selling and buying at this price.[54] In equilibrium, the two parties split the $500 asset value equally, with each party getting $250. The offeror cannot do better than offering $250. If he offered $225 instead, the recipient would surely buy since the recipient would net $500 – $225 = $275 by buying. This would give the offeror a payoff of $225 which is less than before. If the offeror offered $275, the recipient would surely sell, giving the offeror a payoff of $500 – $275 = $225, which again is less than before. Thus, the offeror proposes $250. The Shotgun clause therefore implements a fair, cost-efficient, and expedient division of the business assets.[55]

In the absence of a well-specified deadlock resolution mechanism, a fair (equitable) and expedient division of the assets may be elusive. The parties would resort to either decentralized bargaining in the backdrop of either the continuation of the deadlock or a potential judicial resolution of the deadlock. Under the assumption of symmetric information between the parties, and assuming away other barriers to negotiation, it is likely that Coasian bargaining will prevail and the parties would agree

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[53] These assumptions are aligned with the Model Real Estate Operating Agreement with Commentary, which presumes "that all of the members have the information, access to capital, general capability and inclination to bid for the interest or interests of the other member or members"(63 BUS. LAW 385(2007-2008) at 222).

[54] If the offeree decides to sell his stake, he will receive the $250 price; if the offer recipient instead decides to buy the other party's stake, he will pay the $250 price and become the sole owner of the firm with business assets with value of $500. Note that the other party, the offeror, is indifferent between the offeree selling and buying at the $250 price as well.

[55] Shotgun clauses also have desirable properties when the owners have unequal equity stakes, but are otherwise symmetric in their information, financial resources, and capabilities. Suppose that there are 100 shares of stock, and that one party owns 99 shares and the other party owns 1 share. They are nevertheless in a deadlock where the ongoing total value is $400 if they continue under the arrangement but $500 if one party buys out the other. A fair solution would be for the company to dissolve and for the larger and smaller owners to receive value of $495 and $5, respectively. The Shotgun clause would specify that the buy-sell offer is per share of the stock, rather than for a 50% ownership stake as described in the text. *See Baldwin v Miller*, No. 04-72919, 2008 WL 2278620 (Bankr. E.D. Okla. May 30, 2008) for a case with these features.

for one party to buy out the other.[56] When the backdrop option is inefficient, and the gains from trade are large, then the range of potential bargaining outcomes is broad. As a consequence, the terms of the negotiated deal may not be equitable.

In this scenario, when bargaining in the shadow of a continued deadlock, the least a party would be willing to accept for his or her stake is $200 (half the value of the deadlocked company). But what is the most that a party would be willing to pay for the stake of the other party? If a party achieved sole control of the company, he or she would receive profits with a present discounted value of $500. So the most that a party would be willing to pay for the other party's stake is $500 – $200 = $300. The bargaining zone, which is the range between the least a party is willing to accept for his stake and the most he is willing to pay for full control of the company, is between $200 and $300. If the parties were bargaining in the shadow of remaining in the inefficient deadlock, then the decentralized negotiations could end up anywhere in this range.

Now suppose that the business agreement has a Shotgun provision that, like the provision included in the operating agreement of the Omnibus Financial Group,[57] serves as an outside option for negotiations. In contrast to the outside option of continued deadlock, which created a large bargaining range as described above, the Shotgun provision creates a clear and efficient default option for the two parties, effectively shrinking the bargaining range. Neither party would be willing to accept a negotiated deal that gave less than their fair share of the company. A party would not be willing to sell his stake in the company for less than $250, what he would get by triggering the Shotgun clause. Similarly, a party would not be willing to pay more than $250. Thus, when used as a backdrop option, the Shotgun clause shrinks the bargaining range to a single point, $250.

In sum, when the parties are symmetrically informed about the value of the company, have adequate financial resources and comparable capabilities, then the Shotgun provision is a fair, expedient, and cost-efficient means of achieving a buyout. Moreover, the Shotgun provision has desirable properties as an outside option; it creates a narrower bargaining range than the outside options of continued deadlock or inefficient liquidation, and thus greater predictability for the parties in their private dealings.

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[56] R.H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960), argued that in the absence of transaction costs, the initial allocation of property rights are not important. Through private bargaining, assets will be allocated to their highest value use.

[57] *Valinote v. Ballis*, No. 00 C 3089, 2001 WL 1135871 (N.D. Ill. Sept. 25, 2001).

### 2. *Asymmetric Information*

The equitable resolution of deadlocks may be elusive when the owners are asymmetrically informed about the value of the company.[58] Suppose that one party is able to better predict the future value of the company than the other party.[59] The better-informed party may be the managing partner who is engaged in the day-to-day management of the company, for example, while the lesser-informed partner may be supplying the financial capital. More specifically, suppose that there is a 75% chance that ongoing value of the company under sole ownership is $250, which is of course substantially less than the rosy projection of $500 (which happens with 25% likelihood). If the parties remain deadlocked, then the ongoing value is $150 (with a 75% chance) or $400 (with a 25% chance), so the loss from continuing in the deadlock is $100 as before. We will assume that the less-informed party, Owner 2, doesn't know which scenario applies (although he/she is sophisticated enough to realize that both scenarios are possible). The better-informed party, Owner 1, knows which of the two possibilities is the true state of affairs.

Owner 2, who is less informed about the continuation value of the company, is at a significant disadvantage when making a buy-sell offer. When making a buy-sell offer, Owner 2 is taking a very literal "shot in the dark." Suppose that Owner 2 makes an offer of $250 under the Shotgun provision.[60] In the best-case scenario, where the assets are worth $500 (or $250 for each owner), then Owner 1, the fully informed offeree, would be indifferent between buying and selling and both owners would ultimately walk away with payoffs of $250. This is an equitable outcome.

In the alternative scenario, where the assets are really worth $250 (or $125 for each owner), then Owner 1 (the offeree) would surely decide to sell his stake to Owner 2. Owner 1 would receive the $250 selling price, and Owner 2 would net nothing because he will become the sole owner of a business with value equal to $250 by transferring $250 to Owner 1 (for assets with value equal to $125 only), i.e., Owner 2 will get a net payoff of zero ($250 – $250 = $0), while Owner 1 will get a net payoff of $250. This is an inequitable outcome.[61]

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[58] Organizations in which the managerial tasks are performed by one of the owners might involve environments in which these asymmetries are exacerbated.

[59] Thus, the two owners have common or affiliated values. This may be contrasted with a situation where the parties have independent private values. Note that our analysis might also apply to cases in which both parties might have better information about different aspects of the business, if only one party's information is relevant to the assessment of the value of the business assets. Finally note that our analysis is not applicable to environments in which both parties hold relevant private information for the determination of the value of the business assets, i.e., two-sided asymmetric information environments.

[60] Note that this is the same offer that was made in the simple setting where there was no doubt as to the value of the assets.

[61] Given that there is a 75% chance that the business assets will have a value equal to $250, and a 25% chance that the business assets will have a value equal to $500, then Owner 2 will receive on average $.75 (0) + .25 ($250) = $62.5.

Owner 2 could instead propose a buy-sell price of $125. This would certainly protect Owner 2 when the assets are worth a total of $250. In this case, Owner 2 would receive a payoff equal to $125. But Owner 2 will receive far less than his fair share in the (less likely) scenario where the assets are worth $500 (since the better informed Owner 1 will opt to buy in this case). Specifically, Owner 2 will receive a payoff equal to $125 and Owner 1 will receive a payoff equal to $500 – $125 = $375, an inequitable outcome.[62]

Owner 2 would do much better if the better-informed Owner 1 made the buy-sell offer instead. Indeed, in our example, the equitable outcome would be obtained in this case. To see how this would work, suppose that Owner 1 offers $250 when the assets have the high value and $125 when they have the low value. In other words, imagine that Owner 1 is *telling the truth*. In this scenario, Owner 2 doesn't directly observe the value of the assets but rationally expects that Owner 2 is proposing a price that is accurately aligned with the true value of the assets. When he receives an offer of $250, for example, Owner 2 believes that the assets have high value, and given this belief Owner 2 is indifferent between selling and buying. When he receives an offer of $125, Owner 2 believes that the assets have low value and is similarly indifferent between buying and selling. It is a toss-up from Owner 2's perspective, and Owner 2 may rationally either buy or sell shares. The possibility that the better-informed Owner 1 could end up on either end of deal is what keeps Owner 1 honest and creates no incentive to misrepresent the value of the company.[63] Table 1 summarizes the possible outcomes under the Shotgun mechanism and asymmetric information.

The preceding analysis has interesting and relevant implications. First, with asymmetric information, a more equitable allocation will be achieved when the informed party makes the offer. Second, our analysis

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[62] Given that the payoff for Owner 2 from offering a price equal to $125 (a payoff equal to $125) is higher than the average payoff he could receive by offering a price equal to $500 (a payoff equal to $62.5), we might expect that a rational Owner 2 would offer the low price. Please see the Appendix for technical details.

[63] Uninformed partners are also typically protected by the duty of loyalty. In fact, the obligation to disclose material facts is part of the duty of loyalty in case of conflict of interest. Specifically, when a partner has a conflict of interest related to a specific transaction, the partner must disclose her interest and any other material facts that might affect the value of the transaction. *Blue Chip Emerald LLC v. Allied Partners, Inc.*, 750 N.Y.S. 2d 291 (N.Y. App. Div. 2002) provides an illustration. In this case following a buyout, the purchasing member turned around and sold the company for 250% of the stated valuation. The court held the purchasing member to be a fiduciary of the selling member, and therefore, obligated to disclose and not misrepresent the material value of the company. Following UPA, courts did not generally recognize a duty of disclosure absent a conflict of interest. *See Day v. Sidley & Austin*, 394 F.Supp. 986 (D.C. 1975). As Professor Bainbridge notes, "UPA 1914 §20 limited intra-partnership disclosure duties (other than access to the books) to situations in which a partner made demand for information of all things affecting the partnership. In contrast, [R]UPA §403(c)(1) imposes a duty to disclose, without demand, any information concerning the partnership's business and affairs reasonably required for the proper exercise of the partner's rights and duties." *See* STEPHEN M. BAINBRIDGE, AGENCY, PARTNERSHIPS & LLCS (2004).

Table 1: The Shotgun Mechanism with Asymmetric Information

| Offeror | Assets Value | Buy-Sell Offer | Allocation of Assets | |
|---|---|---|---|---|
| | | | Owner 1 | Owner 2 |
| Owner 1 | $250 | $125 | 50% | 50% |
| (Informed Owner) | $500 | $250 | 50% | 50% |
| Owner 2 | $250 | $125 | 50% | 50% |
| (Uninformed Owner) | $500 | $125 | 75% | 25% |

suggests each of the two parties will prefer that the other party be the one to make the buy-sell offer. Absent provisions that *mandate* the use of the Shotgun for resolving deadlocks, the two parties may end up in a standoff where each party wants the other to pull the trigger. They might be "gun shy."[64] Interestingly, this implication is consistent with what is observed in practice: Despite their widespread adoption, it is relatively rare for Shotgun provisions to be triggered.[65]

Contracting parties should be aware of the problems caused by asymmetric information and take ex-ante steps to mitigate them. If the parties can anticipate at the time of drafting their business agreement which of the two owners will have better information, then they might want to specify that the better informed party will be the offeror. Some of the circumstances, such as the practical withdrawal of one of the business owners, may be foreseeable.[66] The parties might also include a claw-back or earn-out provision in their contract as an added protection against opportunism. These clauses would assure the selling member additional compensation if the company were later sold for a premium over the buy-sell price. The incorporation of a material adverse effect (MAE) or a material adverse change (MAC) clause in the business agreement, under which the better-informed partner has the obligation

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[64] The rare initiation of the buy-sell procedure under Shotgun clauses might also be explained by the parties' choice of simple buy or simple sell offers as exit mechanisms. Professors Brooks, Landeo and Spier present theoretical analysis and experimental evidence regarding the incentives of the parties to choose simple buy or simple sell offers in non-mandatory Shotgun environments (Richard R.W. Brooks, Claudia M. Landeo, & Kathryn E. Spier, *Trigger Happy or Gun Shy? Dissolving Common-Value Partnerships with Texas Shootouts*, 41 RAND J. ECON. 649 (2010)).

[65] The National Association of Real Estate Investment Trusts (NAREIT) conducted a survey among its members and found that all 33 respondents to the survey reported including Shotgun provisions in their business agreements, although 82% of them indicated that these clauses were rarely or never triggered (Public letter from George Yungmann, Senior Vice-President, Financial Standards, NAREIT, to Russell Golden, Chairman of Emerging Issues Task Force, Financial Accounting Standards Board, (October 22, 2007) (available from authors upon request)).

[66] These circumstances will often change the relative capabilities of the parties as well, an issue that will be discussed in the next section.

to notify the less-informed member of events that materially reduce the firm value, might also be beneficial.[67]

### 3. *Other Asymmetries*

We discuss now the implementation of Shotgun mechanisms under asymmetric financial resources, asymmetric capabilities, and non-monetary preferences.

**a.** *Asymmetric Financial Resources.* Shotgun provisions should be adopted with caution when owners do not have equal financial capabilities. Following our original example, suppose that the value of the company under a continued deadlock is $400 and that the value increases to $500 when one party buys the other party out. Suppose that one party, Owner 1 say, has very deep pockets and could easily afford to purchase Owner 2's stake.[68] Owner 1 may have the advantage of having accumulated significant personal wealth, or perhaps has easy access to other sources of capital from outside associates and lenders. Owner 2, on the other hand, is financially constrained. The Shotgun provision puts Owner 2 in a very vulnerable position. If Owner 1 were to activate the clause and propose a very low buy-sell price, $10 say, then Owner 2 may well end up in a financial bind.[69] Although Owner 2 would surely want to buy out Owner 1's stake at this price, and would net a whopping $500 – $10 = $490 by doing so, Owner 2 may be unable to raise the necessary capital to finance the purchase.[70] Thus, the liquidity constraints faced by one owner create an opportunity for the better situated owner to acquire the assets at a predatory price.[71]

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[67] *See Metro Communications Corp. BVI v. Advanced Mobilecomm Technologies Inc.*, 854 A.2d 121 (Del. Ch. 2004) for a recent case involving a MAC provision.

[68] If the proposed price is above $250, then Owner 1 would of course prefer to sell his stake to Owner 2 at this price.

[69] Financial advisors warn shareholders about the advantage of the party with the "deeper pockets" under Shotgun clauses. See Miriam Varadi, MERCHANTS OF ENTERPRISE - PRIVATE EQUITY IN CANADA: THE COLOUR AND CONTROVERSY (2009).

[70] Note that the financially-constrained owner might avoid being taken advantage of if he acts first, triggers the Shotgun provision by making a buy-sell offer to the other party for $249. At this price, the financially-liquid offeree would surely prefer to buy the offeror's stake and net $500 – $249 = $251 than to sell his own stake for $249. Note that if the offeree opted to sell his stake for $249, the financially constrained offeror will not be able to raise the funds necessary to finance the purchase and may need to breach the contract. Including language in the contract that would nullify the breaching party's buy-sell offer could solve this problem. For recommended language, see the Model Real Estate Development Operating Agreement 9A.4(a). Alternatively, the contract would be giving the non-breaching member the option to purchase the breaching member's stake at a significantly reduced price. For an example of so-called 10% haircut, s*ee Eureka VIII LLC v. Niagara Falls Holdings LLC*, 899 A.2d 95 (Del. Ch. 2006), *aff'd*, 918 A.2d 1171 (Del. 2007).

[71] See, for example, Fredric D. Tannenbaum, *What Every Business Lawyer and Business Owner Should Know About Buy-Sell Agreements*, 1089 PLI/CORP. 441, 485 (Dec. 1998), "Theoretically, the offeree's right to buy out the offeror at the same price offered by the offeror will incite the offeror to quote a fair price, for fear that if the price is too low, the offe-

There are several contractual and legal protections against the problem of asymmetric financial resources. First, business agreements can be designed to give the receiver sufficient time to arrange for financing and attend to other administrative matters.[72] In addition, business agreements may explicitly allow for buyouts to be funded over time, so the acquiring member is effectively providing the financing for the departing member.[73] Indeed, there are companies that help entrepreneurs react quickly to an executed Shotgun clause (i.e., venture capital firms that provide funds for this purpose).[74] Second, it is not uncommon for the financially-disadvantaged party to claim that the other violated duties of loyalty, good faith dealing, and fiduciary responsibilities, and courts may be sympathetic towards these types of complaints.[75]

**b.** *Asymmetric Capabilities.* When the two parties have different capabilities of running the company, Shotgun provisions may lead to inequitable divisions of value.[76] Let's return to our original example where the parties are symmetrically informed about the value of the company's assets, and assume that the value of the company under a continued deadlock is $400. Owner 1 is the more capable manager, and if the ownership of the company was concentrated in Owner 1's hands then the value of the company would rise to $500. In contrast, Owner 2 is less capable and the value of the company under Owner 2's control is no higher than the value under deadlock, $400.

Suppose that Owner 1, the more capable party, triggers the Shotgun provision and makes a buy-sell offer. The most profitable offer that Owner 1 could make is just over $200, say $201. Faced with this price, the less-capable Owner 2 would choose to sell his stake, since the $201 sale price exceeds the net value from buying out Owner 1 (since $400 –

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ror will be bought out at that price. In reality, however, the offeror and offeree do not always have the same financial resources, and the offeree's rights to match a low offer by the offeror may be illusory." See also Wayne M. Gazur, *The Forgotten Link: "Control" in Section 482*, 15 NW. J. INT'L L. & BUS. 1, 45 n.170 (1994); *Practical Considerations for Drafting and Utilizing Deadlock Solutions for Non-Corporate Business Entities*, 2001 COLUM. BUS. L. REV. 231 (text at nn. 35-43, 55-56, and immediately following) (2001); John Goodgame, *When Getting Out Is Hard To Do*, 14 BUS. L. TODAY 31, 36 (May/June 2005).

[72] Between 30 to 60 days is fairly typical in these agreements.

[73] See Stephanie Clifford, *How to Write a Buy-Sell agreement*, INC. MAG., Nov. 1, 2006, available *at* http://www.inc.com/magazine/20061101/partnership-buy-sell.html.

[74] One such company, called the Shotgun Fund, which is based in Canada, specializes in these types of deals. *See* http://www.Shotgunfund.com/index.htm.

[75] But see *D'Angelo v. Leone*, No. 2005/09815, 2007 BL 241725 (N.Y. Sup. Ct. Feb. 13, 2007). There, the buy-sell deadlock provision was upheld, despite wealth differences. "The parties did not negotiate terms to protect the less wealthy shareholder, and the court cannot now supply them." In *Denn v. Anderson*, No. 42954-0-I, 2000 WL 194679 (Wash. App. Feb. 14, 2000) the appeals court found that the lower court had erred in its finding of a breach of good faith by the offeror.

[76] The allocation of managerial roles in the organization might be an important source of asymmetric capabilities. Specifically, if the business is managed just by one of the owners, she might develop stronger capabilities to create value.

$201 = \$199$). So Owner 1 would receive a net payoff of $299 and Owner 2 would receive $201. A more equitable outcome would be obtained if Owner 2, the less capable party, makes the buy-sell offer. Owner 2 would offer just under $250, say $249, and Owner 1 will decide to purchase Owner 2's stake. Owner 1's net payoff is $251, and Owner 2's payoff is $249.[77]

This analysis raises several implications. First, when one partner or member has stronger capabilities than the other, then the terms of trade from the buyout may be inequitable.[78] Second, in contrast to the case of asymmetric information, where the parties were "gun shy," each preferring the other to activate the Shotgun provision, in this new setting the parties are "trigger happy." The more capable party receives a higher net payoff if he is the one to trigger the clause, $299 versus $251. Conversely, the less capable party receives a higher payoff if he is the one to pull the trigger, $249 versus $201.

The owners could take ex-ante steps in their business agreements to protect against the type of opportunism that might arise in these environments. In the case of foreseeable sources of asymmetric capabilities, the role of offeror could be assigned ex-ante to the less capable owner.[79]

**c.** *Non-Monetary Preferences.* The advantages of Shotgun clauses may be even larger when deadlocked parties have non-monetary preferences. Our benchmark example presumed that the two owners were motivated by money, with each party wanting to extract as much of the monetary value of the company for him or herself as possible.[80] The parties were not altruistic, since they did not derive any utility from monetary value captured by other party. Nor were the parties spiteful, since they did not derive any personal non-pecuniary benefit from harming the position of the other party.

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[77] See *Ledford v. Peeples*, 657 F.3d 1222 (11th Cir. 2011), where the Shotgun provision was triggered by the more capable member who also had access to better financing.

[78] The implication that an equitable outcome is obtained when the *less-capable owner* initiates the Shotgun provision may be in conflict with our earlier result that the *better-informed party* should be the one to make the offer. After all, in practice, the more capable owner may also have better information about the future business prospects, i.e., the environment might involve asymmetric capabilities *and* asymmetric information. Richard W. Brooks, Claudia M. Landeo, and Kathryn E. Spier, *Trigger Happy or Gun Shy? Dissolving Common-Value Partnerships with Texas Shootouts*, 41 RAND J. ECON. 649 (2010), demonstrate that the less-informed and less-capable owner will never make a buy-sell offer in this environment. She will instead prefer to make a simple sell offer to sell her stake to the other owner.

[79] Cases involving both asymmetric capabilities and asymmetric information can pose particular challenges, especially when the less-informed owner is also less capable. It may be advisable to adopt and clarify other mechanisms for deadlock resolution when drafting the business agreement. See the earlier discussion of clawback and earnout provisions, and MAW and MAC clauses.

[80] The previous extensions were also developed under this assumption.

Suppose that over the course of the decline of their relationship, and resulting deadlock, the two parties have developed spiteful preferences: each party is willing to sacrifice his or her own monetary gain in order to prevent the other party from enjoying any monetary benefit. If both parties have such preferences, then deadlocks could persist despite the opportunities for negotiation. Both parties might prefer to remain in the deadlock, receiving $200 each, to a financially-superior arrangement where they each receive monetary payoffs of $250. If both parties have spiteful preferences, then the business deadlock would persist even with a Shotgun clause, since neither party would be willing to trigger it.

Assume now that just one of the two parties, Owner 1, has strong spiteful preferences. Specifically, assume that Owner 1 prefers remaining in the deadlock to buying Owner 2's stake for $201 or to selling his own stake for $299.[81] Owner 2, on the other hand, has traditional preferences. In the absence of a Shotgun clause or other deadlock resolution mechanism, the parties will remain deadlocked. There is no scope for an agreement between the parties, since Owners 1 would not agree to a deal that enhances the monetary position of Owner 2. In other words, bilateral negotiations to end the deadlock are destined to fail.

A Shotgun clause gives Owner 2 a mechanism for unilaterally ending the deadlock, since it effectively removes the status quo of continued joint ownership from the bargaining table.[82] Owner 1 is forced to either sell his stake or to buy the other party's stake, and in both cases Owners 1 and 2 get financial payoffs of $250. Owner 1 is spiteful, of course, and would prefer the status quo of continued value destruction where they each receive payoffs of $200, but this option is not available once the Shotgun provision has been triggered. So in equilibrium, Owner 2 would propose a buy-sell offer of $250 and the financial value of the firm would be divided evenly between the two owners.

## C. *Alternative Provisions*

Auctions and external appraisal methods are discussed in this section.

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[81] Note that in each of these two scenarios, Owner 1 receives a monetary payoff of $299 and Owner 2 receives $201. By assumption, Owner 1 is spiteful and prefers to sacrifice his own monetary payoff to keep Owner 2's payoff down to $200.

[82] In *Decker v. Decker*, 726 N.W.2d 664 (Wis. App. 2006), the two Decker brothers (Frederick and David) formed a real estate LLC. Frederick wanted to dissolve the LLC, and David wanted it to continue. "Frederick, who the record suggests apparently harbors some animosity towards his brother, insists that the properties must all be sold to third parties on the open market, therefore creating considerable costs, including real estate commissions, tax consequences and the like, to both." Their operating agreement included a buy-sell clause, which Frederick sabotaged by making a grossly inflated buy-sell offer which was almost three times the value of David's stake. As Frederick apparently anticipated, David agreed to sell at that price. Frederick subsequently refused to follow through and buy out David. The trial court eventually ordered Frederick to sell his stake to David at fair market value, commenting: "The only thing I can't give [Frederick] which he seems to dearly want is to intentionally cause further harm to his brother."

### 1. *Auctions*

Business agreements might specify that, in the event of a deadlock, the owners should implement an auction to determine which party will buy out the other.[83] Suppose the parties are compelled to participate in a sealed-bid auction, where the party who submits the highest bid purchases the asset from the other party, and pays a price equal to his own bid.[84] The "winner" of the auction is the buyer and the "loser" of the auction is the seller.

We will show that, when the two parties are both fully informed about the value of their joint assets, are financially motivated, and have equal access to capital, then a private auction of the assets (with just the two owners bidding) will lead to an equitable division of the company's value. Indeed, the auction mechanism leads to the same outcome as a Shotgun procedure in this case. When one party has better information about the value of the assets than the other party, or other asymmetries are present, then this equivalence no longer holds. With asymmetries, the Shotgun mechanism may well outperform a standard auction.[85]

*a. Symmetric Information.* Suppose that the value of the assets is $500 and both parties know that it is worth $500. Since both parties understand that the asset value is $500, then the selling price will be bid up to $250 but no more. Neither party would be willing to raise his bid to $251. It is easy to see why: A party would rather lose the auction and receive $250 as a seller, than win the auction and pay $251 for an asset that is worth $500 (since the latter strategy would net the winner of the auction $249). So, the parties will bid the price up to $250 and no further, either party might become the sole owner, and the value of the asset will be split evenly between them. The same logic can be applied to show that in case of business assets with value equal to $250, the parties will equally split the assets by bidding up to $125 but no more.

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[83] For instance, in *Monin v. Monin*, 785 S.W.2d 499 (Ky. Ct. App. 1989), the two Monin brothers agreed to a private first-price auction (coupled with a covenant not to compete). In a private first-price auction, only the two 50-50 owners submit bids to buy the other party's shares of the business assets, and the highest bidder ("the winner") buys the other owner's assets at the winner's proposed price. In *Lola Cars Intl., Ltd. v. Krohn Racing, LLC*, C.A. Nos. 4479-VCN, 4886-VCN., 2011 BL 41361 (Del. Ch. Feb. 08, 2011), on the other hand, the parties included a Dutch auction (sometimes known as Mexican Shoot Out) in their business agreement. In this mechanism, the parties submit sealed bids indicating the minimum price for which they would be willing to sell their 50% share of the business assets. The highest bidder wins ("the winner") and buys the other party's assets ("the loser") at the price indicated by the lowest bidder.

[84] This type of auction is called a *first-price sealed-bid auction*.

[85] The Shotgun mechanism can be interpreted as a special type of auction where one party places the first bid, which is revealed to the second party, who then may place a second bid. The critical question is which owner should place the first bid. Our arguments suggest that it should be the informed owner.

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**b.** *Asymmetric Information.* The equivalence between the Shotgun mechanism and the auction no longer holds when the parties are not fully informed about the value of the underlying asset. One party, the managing owner perhaps, may have a more accurate estimate of the future income from the assets or the viability of the business model. Such asymmetries of information can lead to very unequal outcomes for the two parties and, in particular, will put the less-informed party at a strategic disadvantage in the auction setting.

Equitable division of the business assets would require that the winning bid equals $125 when the value of the assets is low ($250) and the winning bid equals $250 when the value of the assets is high ($500). Suppose for a moment that the better-informed party was in fact willing to place these fair and equitable bids in the sealed-bid auction. Anticipating this, what bid would the less-informed party make? It is easy to see that the less-informed party would be very reluctant to offer anything above $125 in this scenario. If he were to bid a somewhat higher amount, $130 say, then he would win the auction and purchase shares when the asset value was low ($250), but his net payoff would be $250 – $130 = $120 < $125. By raising his offer to $250, the less-informed player would do even worse (since his net payoff would be zero if the assets were worth $250).[86] Now, if the better-informed party *anticipated* that the less-informed party would place a bid of no more than $125, then the better-informed party would strategically reduce his bid below $250 when the asset value is high. Why would the better-informed party want to bid $250 if the less-informed party is bidding $125? So clearly an equitable division of the business assets cannot be obtained in the auction.[87]

The playing field is clearly not level when the parties are asymmetrically informed about the value of the business assets. The well-informed party can fine-tune his bid to the true value of the underlying asset while the less-informed party cannot. This puts the better-informed party at a strategic advantage in the sealed-bid auction. On average, the party with the better information will receive a higher payoff in the auction.

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[86] If he bid more than $125, the less-informed player would fall victim to the so-called "winner's curse."

[87] One can show that the bidding strategies in this common-value auction will involve a degree of randomization by both of the parties. The better-informed party will offer $125 when the asset value is low, but will randomize over a range of prices when the asset value is high. The less-informed party will always randomize over a range of prices.

**c.** *Other Asymmetries.* The standard auction mechanism also leads to inequitable outcomes when the parties have asymmetric capabilities or access to financial resources. Following the example from the last section, suppose that the business assets in the hands of the more capable party have a value equal to $500, while the assets in the hands of the less capable party have a value equal to $400. In an auction, the less capable party would bid up to $200, and the more capable party would win the auction and purchase the assets for $201. The more capable party comes out ahead here, with a payoff of $299 compared to the less capable party's payoff of $201. Similarly, if one party is financially constrained, then the financially stronger party may acquire the assets at a bargain price.

### 2. *External Appraisal*

Business agreements might give deadlocked owners the option to buy the stakes of other owners, or sell their own stakes to the other owners,[88] at a price that is set by an external appraiser.[89] Using external appraisers to determine market value may be problematic as well. First, appraisals can be very expensive, especially if appraising the assets requires specialized business knowledge. Second, the contracting parties may disagree about the appropriate choice of the appraiser.[90] Finally, and very importantly, the appraisers may be at an informational disadvantage relative to the members themselves at placing a value on the assets. In specialized closely-held business organizations, much of the value of the business is closely tied to the expertise of the partners, and outside markets for these organizations are often thin or non-existent. So, in many situations, the partners are themselves in the best position to determine the value of their business organization.[91]

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[88] For an example of a call right, or the option to purchase the stake of another member, *see Cobble Hill Nursing Home, Inc. v. Henry & Warren Corp.*, 601 N.Y.S.2d 334 (N.Y. App. Div. 1993). For an example of a "put right," or an option for a dissociating member to sell his or her share back to the company, *see Fisk Ventures, LLC v. Segal*, No. 3017-CC., 2009 BL 13545 (Del. Ch. Jan. 13, 2009).

[89] The price might be also set by using a predetermined formula. RUPA §701(b) and (c) provide the default rule for determining the buyout price. The predetermined formulas are sometimes based on the book value of the partnership or LLC, or based on other accounting measures of performance. While formulas have the practical advantage of being unambiguous, they may not reflect the true underlying fundamentals of the business and may be out of alignment with the economic reality of the marketplace. Real estate, for example, is typically included on the balance sheet at its historical value, rather than its market value. Other economic assets, such as the business methods of the company and their relationships with employees, customers, and suppliers, may not be counted as assets under standard accounting principles.

[90] It is therefore advisable for the contract to specify either who the appraiser will be, or an unambiguous procedure for selecting appraisers.

[91] This has been recognized by courts. In *Gilvesy Enterprises*, a Canadian case involving a Shotgun provision heard by the Tax Court of Canada, [1996] C.T.C. 4852 (Can. Tax Ct.), the court observed that "Faced with a choice between the highly theoretical opinion of [the

Table 2: Deadlock Provisions, Asymmetries, and Outcome Characteristics

| Provision | Asymmetries | Fairness | Expediency | Cost-Efficiency |
|---|---|---|---|---|
| Shotgun | No | Yes | Yes | Yes |
| Auction | No | Yes | Uncertain | Uncertain |
| Appraisal | No | Uncertain | No | No |
| Shotgun | Yes | Uncertain | Yes | Yes |
| Auction | Yes | No | Uncertain | Uncertain |
| Appraisal | Yes | Uncertain | No | No |

### D.  *Discussion*

Our analysis of private resolution of deadlocks indicates that, in the absence of asymmetries, both Shotgun mechanisms and private auctions will lead to fair and equitable outcomes. Auctions may create additional delay and costs, however, since they often require the services of third-party auctioneers. Although external appraisal methods might generate fair outcomes, these methods involve unnecessary administrative costs (cost inefficiencies) and delays (non-expedient procedures). Importantly, under asymmetries, only the Shotgun mechanism might preserve these three properties. Table 2 summarizes our assessment of the properties of the Shotgun, auction, and external appraisal provisions.

We have demonstrated that the Shotgun mechanism has the potential to level the playing field and facilitate a more equitable division of value for the parties under asymmetric information. Specifically, when the better informed of the two parties is compelled to make a buy-sell offer, the allocation of the assets is equitable. The informed party offers $125 when the asset value is low and offers $250 when the asset value is high. The less-informed party buys when the buy-sell offer is low, and sells if the buy-sell offer is high, and the surplus is divided evenly. It should be noted that this equitable outcome is not obtained with the Shotgun mechanism when the less-informed party is compelled to make a buy-sell offer. In that case, the well-informed recipient would choose to buy if the assets were underpriced by the offeror, and would sell if the assets were overpriced. Unlike the auction mechanism under asymmetric information, the Shotgun procedure may well achieve an equitable outcome when it is administered appropriately.

Finally, we have shown that the Shotgun mechanism also has the potential to produce equitable results in case of asymmetric financial resources or capabilities. As described earlier, equitable outcomes can be achieved when the less capable owner makes a buy-sell offer and sufficient time is provided to arrange for financing of the buy-sell operations.

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outside appraiser], and the real transaction between these two very experienced business men, knowledgeable about the company and the industry, dealing in the real world with their own money, I have a strong preference for the latter as evidence of value."

## IV. Judicial Resolution with Shotgun Mechanisms

This section discusses the judicial resolution of business deadlock, including the judicially-mandated dissociation of a joint owner and/or dissolution of the business entity.[92] Judicial involvement may arise in situations where the business owners did not include a buy-sell mechanism in their business agreement ex-ante.[93] It may also arise when a deadlock clause was included in the business agreement but the grounds for dissociation or dissolution are not clear. In both situations, the court may be called on to determine whether dissociation or dissolution is justifiable and to determine the appropriate remedy and asset valuation procedure.

We argue that Shotgun mechanisms in the judicial context exhibit the same desirable properties as they did for private contracting: Fairness, expediency, and cost-efficiency. Moreover, we claim that the risks associated with misuse are likely to be less severe in the judicial context because of the ex-post implementation of the Shotgun mechanism. With the power of 20/20 hindsight, courts might have enough information to optimally tailor the design of Shotgun mechanisms to the specific circumstances surrounding the case.

### A. *General Aspects*

UPA §32 identifies the circumstances upon which a court may order a partnership dissolved. A court may order dissolution of the partnership on a number of grounds associated with business deadlock, including circumstances under which (1) a partner's conduct affects prejudicially the carrying on of the business; and, (2) a partner willfully or persistently breaches the partnership agreement or otherwise so conducts himself so that it is not reasonably practicable to carry on the business in partnership with him.[94]

RUPA §601 introduces a statutory mechanism for expelling a partner in situations associated with deadlock: Judicial dissociation. Specifically, the other partners may sue to obtain a judicial expulsion if one of these three conditions is satisfied: (1) The partner has engaged in wrongful

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[92] Judicial intervention might also involve judicial appraisal or judicial sale under court supervision. See the Dissociation and Dissolution Section.

[93] *See for example, Vila v. BVWebTies LLC*, No. 4308-VCS, 2010 BL 239620 (Del. Ch. Oct. 1, 2010).

[94] Other grounds involve cases in which: the business of the partnership can only be carried on at a loss; a partner suffers from an incapacitating mental illness; a partner becomes unable to perform her part of the partnership agreement; and application of the assignee of a partner's interest or of a creditor who has obtained a charging order against a partner's interest pursuant to §28. Commentators recommend to pursue a judicial decree even if grounds for dissolution under UPA §31 appear to exist. Under UPA, withdrawing from the partnership triggers dissolution. However, it might not induce an actual buy out sale, especially in deadlock cases in which the other party is not likely to cooperate. (See, for instance, *Owen v. Cohen*, 119 P.2d 713 (Cal. 1941).) See STEPHEN M. BAINBRIDGE, AGENCY, PARTNERSHIPS & LLCS (2004) for additional discussion.

conduct that adversely and materially affected the partnership's business; (2) the partner willfully or persistently violated the partnership agreement or the fiduciary duties of a partner;[95] or, (3) the partner's conduct makes it impractical to carry on the business. Regarding dissolution, RUPA's grounds are broader than those of UPA, including situations where "it is not otherwise reasonably practicable to carry on the partnership business in conformity with the partnership agreement."[96] Upon application for judicial dissolution by one of the partners, a court may dissolve the partnership if "it is equitable to wind up the partnership business." For LLCs, a court may order dissolution upon request by one or more of the members where the economic purpose of the business has been frustrated or there has been serious misconduct by one or more of the members.[97]

The implementation of judicial resolution of deadlock depends on whether the case involves dissociation of a co-owner, dissolution of the firm with business continuation, or dissolution without business continuation.[98] In judicial dissociation under RUPA, a court-administered process under which the other owners buy out the dissociating owner's interest (or both owners have the right to buy out the other party) is im-

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[95] §404.

[96] RUPA §801(5). RUPA states that at-will or term partnerships can be dissolved by court order in cases in which "(1) The economic purpose of the partnership is likely to be unreasonably frustrated; (2) another partner has engaged in conduct relating to the partnership business which makes it not reasonably practicable to carry on the business in partnership with that partner; or (3) it is not otherwise reasonably practicable to carry on the partnership business in conformity with the partnership agreement."

[97] As we mentioned before, most statutory rules regarding general partnerships and LLCs are default rules that can be modified by the owners' agreements. For instance, the owners can explicitly forego privately implemented Shotgun or other buyout mechanisms, specifying instead that the members must seek judicial dissolution in the event of a deadlock. In *Vila v. BVWebTies LLC* No. 4308-VCS, 2010 BL 239620 (Del. Ch. Oct. 1, 2010), the LLC Agreement §10.02 stated that "The LLC shall be dissolved upon ... the entry of a decree of judicial dissolution under the [Delaware Limited Liability Company] Act." The court noted "Of course, the existence of a deadlock would not necessarily justify dissolution if the LLC Agreement provided a means to resolve it equitably. But the LLC Agreement does not contain a buy-sell arrangement or any other provision (such as one providing for the appointment of an agreed-upon third manager) to resolve the deadlock." Note that the cost inefficiencies associated with the risk of piecemeal liquidation might motivate the owners to explicitly waive their rights to judicial resolution, and instead include buy-sell clauses in their business agreements to begin with. In *R&R Capital, LLC v. Buck*, the LLC operating agreement specified: "The Members agree that irreparable damage would occur if any member should bring an action for judicial dissolution of the Company. Accordingly each member ... waives and renounces such Member's right to seek a court decree of dissolution or to seek the appointment by a court of a liquidator for the Company" *R&R Capital, LLC v. Buck & Doe Run Valley Farms,* LLC, No. 3803-CC., 2008 BL 232534 (Del. Ch. Aug. 19, 2008). The Delaware Chancery Court upheld this contractual waiver.

[98] Remember that (1) under UPA, dissociation always trigger dissolution, and dissolution might involve business continuation (i.e., winding-up processes involving public selling of the business assets, as a going concern or piecemeal liquidation, are not necessarily triggered; buy outs from the other partners might occur instead); and, (2) under RUPA, dissociation does not trigger dissolution, and dissolution always involves a winding-up process (i.e., it does not allow for business continuation).

plemented. Similar buy out processes are used in dissolution with business continuation under UPA. In contrast, dissolution without business continuation triggers a winding up process under which the firm's business assets are distributed to the owners, under both UPA and RUPA. Hence, the owners are entitled to have the business publicly sold on either a going concern basis or through liquidation of individual assets. Court-appointed receivers or trustees generally conduct the winding up process.

## B. *Asset Valuation*

A critical issue in dissociation and dissolution cases involving closely-held business organizations is the valuation of the business assets. Two asset valuation methods are typically used by U.S. courts. First, courts might appoint an external appraiser to determine the value of the company assets, and then implement a buyout process where a co-owner is given the option to purchase the stake of the other owner at the appraised price.[99] Second, judicially-mandated public auctions might be implemented. In *Polikoff v. Levy*, the court found "Where the co-venturers cannot agree on the method of sale at dissolution, a public judicial sale is the only available method of conversion of the assets. Equitable principles and possible unfavorable results of a forced judicial public sale cannot compel disregard for the application of the ordinary and traditional methods of final settlement of a business relationship."[100] Not surprisingly, it is common for the co-owners to exercise their rights to participate in the judicial sales, entering bids for the purchase of the assets.[101]

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[99] See *Creel v. Lily*, 729 A.2d 385 (Md. 1999), *Horne v. Aune* 121 P.3d 1227 (Wash. App. 2005) and the discussion therein. Courts have recognized that sometimes the parties themselves are in the best position to ascertain the value of the property, and hence, no external appraiser is required to establish the fair market value of the business assets. For instance, in *Keenan v. Wade*, 182 P.3d 1099 (Alaska 2008), the Supreme Court of Alaska stated "*Disotell* did not create the 'requirement that the market value of property be proved by formal appraisal' or even address 'whether it is error to reject a professional appraiser's opinion regarding the value of real property in favor of the owner's opinion' ... Here, Wade's opinion of the value of Keenan's lot is based on his knowledge of comparable sales of property."

[100] *Polikoff v. Levy*, 270 N.E.2d 540 (Ill. App. 1971). See also *McCormick v. Brevig*, 96 P.3d 697 (Mont. 2004).

[101] In *Prentiss v. Sheffel*, 513 P.2d 949 (Ariz. App. 1973), the court found that the partners' participation in the judicial auction enhanced the selling price of the assets. Note that the presence of inside bids may chill the participation of outside bidders. Some courts, recognizing the potential shortcomings of public auctions, have tailored the implementation of the winding up process to the specific characteristics of the cases. In *Kelley v. Shay*, the court found that one of the partners would be at a disadvantage in a judicial auction, and thus ordered the assets to be divided in kind between the partners rather than auctioned. See *Kelley v. Shay*, 55 A. 925 (Pa. 1903). Similarly, in *Logoluso v. Logoluso* 233 Cal. App. 2d 523 (1965) the court eschewed a liquidation sale in favor of an in-kind distribution of the partnership assets.

**C.** *Court Intervention with Shotgun Mechanisms*

    **1.** *Ex-Ante Private Design*

Shotgun mechanisms are particularly appropriate when an outside market for the asset does not exist and it is self-evident that one of the original owners should continue with the business venture.[102] Under these circumstances, a public auction is unlikely to attract serious bidders (other than the original owners themselves). Further, a buyout mechanism that relies on asset valuation by an external appraiser would be costly and potentially inaccurate. Simply put, when the information and expertise is in the hands of the original owners, public auctions and external appraisals are a waste of time and money.

    Our analysis of privately-implemented deadlock resolution suggests that Shotgun mechanisms lead to fair, expedient, and cost-efficient resolution of business deadlock when the two parties are equally informed, equally capable, and each has adequate financial resources. In the absence of asymmetries, it is immaterial which party makes the offer and which party receives it, since the mechanism ensures that the monetary value of the business is divided evenly. As discussed earlier, there is a very real risk that the Shotgun mechanism can generate inequitable outcomes when parties are asymmetric. When drafting their initial business agreements, it is hard for co-venturers to foresee the evolution of their relationship and their future circumstances. Over time, the owners' management roles may change and adapt, their areas of specialization may diverge, and their general capabilities may grow stronger with experience or weaker with age. When including a Shotgun provision in the business agreement, the owners should be aware that they are running the risk that the provision may be used opportunistically and inappropriately, benefitting one owner at the expense of the other.

    **2.** *Ex-Post Judicial Design*

Shotgun mechanisms are seldom used by judges in the United States when resolving business deadlocks. The recent case of *Fulk v. Washington Serv. Assocs.* provides a rare example.[103] Bernard Fulk and Laurence Long were 50/50 shareholders in WSA, a joint venture, and the only two board members.[104] There was no buy-sell provision in WSA's shareholder agreement. The Delaware Court appointed a receiver with custodial powers to "formulate and execute a Plan of Sale that would maximize the value to the shareholders in a judicially ordered sale of WSA." The

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[102] The original owners may have acquired firm-specific capital and expertise that would be lost if the firm were sold to a third party.

[103] *Fulk v. Washington Serv. Assocs.* No. 17747-NC, 2002 BL 1389 (Del. Ch. June 21, 2002).

[104] Long was the operational owner, running the business, Fulk was the financial owner. In addition, there were eight employees, including Long's children. Long and his children had all of the intellectual capital, and threatened to leave and compete if Fulk were to take control.

custodian argued that a sale to an outsider was very unlikely, "and, moreover, that any bids by outsiders would probably be less than what either of the current stockholders would be willing to pay. Accordingly, the Custodian concluded that value would be maximized in a sale ... to either of the two stockholders, but not in a public auction." The Custodian subsequently recommended that:

> [T]he Court order a purchase/sale process involving only the two stockholders, Fulk and Long ... [O]ne of the two stockholders (the "offeror") stockholder would offer to purchase or sell his (or its) interest for a stated price. The other ("offeree") stockholder would then decide whether to buy or sell his (or its) interest at the price established by the offeror stockholder. The Custodian recommended [this method] as his preferred approach, with the Trust being the offeror-stockholder and Fulk being the offeree, who would have the option to buy or sell at the price established by the Trust.

This mechanism was upheld by the judge under Delaware General Corporation Law (DGCL) §273.[105]

It is important to note that, while the risks associated with asymmetries are certainly relevant for the use of Shotgun mechanisms in the judicial context, these problems are likely to be less severe than in the private context. Since courts have the ability to design the Shotgun mechanisms ex-post rather than ex-ante, they may well have enough information to identify the presence of asymmetries and tailor the Shotgun mechanism accordingly.

Consider the problem of asymmetric information where just one owner can accurately assess the future value of the business. As explained before, a fair outcome is achieved if the informed owner makes the buy-sell offer, since the Shotgun mechanism creates an incentive for the owner to make an accurate offer. Given that the circumstances leading to asymmetric information and proxies for its presence may be difficult to foresee and describe ex-ante, the parties might not be able to correctly

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[105] The Delaware Court argued, "[N]o cited Delaware case directly or inferentially prohibit this Court from ordering a discontinuation of a joint venture on the terms the Custodian is proposing." Although this case involved a closely-held corporation, given that the asset valuation problem is also critical in these types of business entities, we consider that this example is applicable. Note also that courts frequently extend the application of corporate law to cases involving LLCs. In fact, regarding the application of the corporate veil-piercing doctrine in case of LLCs, in the leading *Kaycee Land and Livestock v. Flahive* 46 P.3d 323 (Wyo. 2002) decision, the Wyoming Supreme Court concluded: "We can discern no reason, in either law or policy, to treat LLCs differently than we treat corporations." Professor Bainbridge argues, "Admittedly, there is a certain intuitive logic to treating LLCs the same way we do corporations ... [T]here is little direct evidence that legislatures intended to treat LLCs and corporations differently ... As we have seen, the courts have blindly followed the corporate law precedent." *See* STEPHEN M. BAINBRIDGE, AGENCY, PARTNERSHIPS & LLCS (Foundation Press, 2004). In *Bentas v. Haseotes*, No. 17223 NC, 2003 BL 1578 (Del. Ch. Mar. 27, 2003), the court also considered a Shotgun mechanism but decided that an auction was more appropriate to the specific circumstances of the case.

specify the role of offeror in their business agreement. Ex-post, however, the identity of the informed owner may be clear. In this case, the implementation of judicially-mandated Shotgun mechanisms where the informed owner makes the offer is feasible.[106]

Similarly, courts might preclude the negative effects of asymmetric financial resources by providing the parties with sufficient time to arrange for financing of the buy-sell operations. Finally, courts might offset the weaknesses related to asymmetric capabilities by assigning the role of offeror to the less capable owner.

In contrast to courts in the United States, Canadian judges frequently apply Shotgun mechanisms in business divorce cases. For instance, in *Kinzie v. Dells*,[107] the court articulated the importance of careful judicial implementation of the Shotgun mechanism:

> In a 'shot gun' sale, the court must determine the party who will make the first offer. Normally, the party who is in the best position to assess the value of the business and determine the fair market value is ordered to make the initial offer ... If either party is unable to obtain financing to complete the purchase of the shares within the 90-day time limit, having made reasonable efforts to do so, the [assets] shall be listed for sale on the open market with the parties having joint conduct of sale.[108]

In addition to addressing the crucial aspect of offeror identification, the *Kinzie* court was cognizant of the potential for financial constraints to frustrate the implementation of the Shotgun mechanism. In particular, the court gave the winning party a sufficiently long period of time to raise the necessary capital and provided incentives for completion of the transaction through the threat of an open-market sale.[109]

Finally, the judicial implementation of the Shotgun mechanism might influence the private resolution of deadlock. If the Shotgun mechanism becomes a commonly-applied valuation procedure in the judicial resolution of business deadlocks, then even in the absence of privately-contracted Shotgun clauses, private resolution of deadlock will involve

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[106] It is also worth noting once again that with common values, a standard sealed-bid auction, where the high bidder purchases the stake of the low bidder, will not lead to a fair division.

[107] *Kinzie v. Dells* 2010 BCSC 1360 (Can. B.C.).

[108] Similarly, in *Lee v. Lee* (2002), 3 B.C.L.R. 4th 129 (Can. B.C.), the court held that the parties with the greater expertise should be the ones to propose the price: "[T]he respondents [appellants here] have been operating the restaurant for a considerable period of time and they are in a far better position than the petitioners [respondents here] to fix a fair price." *See also Whistler Service Park Ltd. v. Glacier Creek Development* 2005 BCSC 1942 (Can. B.C.); *Safarik v. Ocean Fisheries Ltd.*, (1996) 17 B.C.L.R. 3d 354 (Can. B.C.C.A.).

[109] The popularity of these mechanisms in Canada, both in private contracts and judicial implementation, goes hand-in-hand with the emergence of specialized financial institutions such as the Shotgun Fund that provides capital to joint owners in such cases. *See* Shotgun Fund, http://www.shotgunfund.com/index.htm (last visited March 21, 2013).

bargaining in the shadow of the Shotgun mechanism. As a result, more equitable private outcomes might be obtained.

## V.  Ex-Post Judicial Design of Shotgun Mechanisms: Experimental Evidence

Although our arguments regarding the benefits of ex-post judicial design of Shotgun mechanisms are logically consistent and supported by current legal cases, actual field data on deadlock resolution processes and outcomes are not generally available. In these circumstances, experimental economics methods are useful complements to theoretical analysis.

This section reports the results from a series of experiments with human subjects. We investigate whether the behavior of the subjects follows the arguments presented in Section IV. Specifically, we study whether the optimal ex-post judicial implementation of the Shotgun mechanism under asymmetric information, i.e., the implementation that generates equitable outcomes, requires the role of the offeror be assigned to the more informed owner. Importantly, this setting also allows us to explore the private incentives of the informed owners to truthfully reveal private information under the Shootout clause, in environments where the role of offeror is assigned to the more informed owner. We consider two different information treatments: Shotgun mechanisms with the informed owner making a buy-sell offer (Informed Offeror environment – IO), and Shotgun mechanisms with the uninformed owner making a buy-sell offer (Uninformed Offeror environment – UO). Computational demands on the subjects are reduced by using a simple binary setting with two business asset values. We minimize the use of labels and terminology to facilitate subjects' understanding of the experimental environment and tasks.[110]

### A. *Numerical Example*

We follow the main features of the numerical example presented in Section III. Specifically, we suppose that two owners have equal ownership stakes in the company. If the owners stay together, the value of the business assets is either low (150) or high (400). We suppose further that the probabilities of encountering low and high values are 3/4 and 1/4, respectively. If sole ownership is achieved, then the total value of the business assets increases to 250 and 500, in case of low and high initial values, respectively. To reduce subjects' computational costs, we restrict the offer prices to the following set: {105, 125, 145, 230, 250, 270}.

Next we describe the main qualitative hypothesis.

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[110] The Appendix presents a general analysis of the binary version of the model. A complete set of instructions and software screens are available from the authors upon request.

**HYPOTHESIS:** *Under asymmetric information, the assignment of the role of offeror to the informed owner increases the likelihood of equitable allocations when the value of the business assets is equal to 500.*[111]

### B. *Games and Sessions*

Subjects played 8 practice rounds and 16 actual rounds using networked computer terminals.[112] Before the beginning of the first actual round, the computer randomly assigned a role to the subjects: Player 1 or Player 2 (Player 1, the informed player, was the offeror in the Informed Offeror condition and the offeree in the Uninformed Offeror condition). Before the beginning of each actual round, the computer also randomly formed pairs.[113] Subjects were not paired with the same partner in two immediately consecutive rounds. Then, the computer randomly chose the value of the business assets.[114] This value was revealed only to Player 1.[115]

The subjects played a two-stage game. In the first stage, the offeror made a take-it-or-leave-it offer to the other subject, the offeree.[116] The offeror chose the offer price from the set {105, 125, 145, 230, 250, 270} and the price was then revealed to the offeree. In the second stage, the offeree was required to respond to the offer by either buying or selling at the named price.

We ran four 90-minute sessions (2 sessions per condition; 62 subjects in total) at the University of Alberta School of Business computer laboratories. The information per condition (number of subjects, number of pairs for the 16 rounds) is as follows: (32, 256) and (30, 240), for the IO and UO conditions, respectively.[117] The subject pool (undergraduate and graduate students from the University of Alberta) received their monetary payoffs in cash ($17 CAD game earnings, on average) at the end of

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[111] When the value of the business assets is equal to 250, we expect that equitable allocations will also occur in the uninformed offeror case. Please see the Appendix for technical details.

[112] Subjects were undergraduate and graduate students at the University of Alberta recruited from electronic bulletin boards. Players were completely anonymous to one another. Hence, this experimental environment did not permit the formation of reputations. The purpose of the practice rounds was to allow subjects to become familiar with the structure of the game, with the consequences of their choices and the choices of the other players, and with the likelihood of confronting low and high types of business assets. During the practice rounds, subjects experienced each role four times.

[113] Given the randomization process used to form pairs, and the diversity of offer categories and prices that subjects confronted (due to the heterogeneity of offer categories and prices), the sixteen actual rounds do not represent stationary repetitions of the game. Consequently, we can treat each round as a one-shot experience.

[114] The computer used the following probabilities: low value with probability ¾, and high value with probability 1/4.

[115] Both players knew that Player 1 received this information.

[116] In the UO condition, Player 2 (the uninformed player) was the offeror; and, in IO conditions, Player 1 (the informed player) was the offeror.

[117] In addition to these sessions, we ran several pilot sessions.

Table 3: Descriptive Statistics for the Informed-Offeror Treatment

|  | Asset Value | |
| --- | --- | --- |
|  | 250 | 500 |
| Price Offered[a] | 125.00 | 250.00 |
|  | 143.76 | 214.11 |
|  | (38.46) | (50.24) |
| Buy Rate | .69 | .23 |
| Offeror's Payoff | 112.99 | 242.18 |
|  | (41.09) | (61.41) |
| Offeree's Payoff | 137.01 | 257.82 |
|  | (41.09) | (61.41) |
| Equitable Allocations Rate | .60 | .40 |
| Observations[b] | 194 | 62 |

Note: [a]Mode and mean prices are presented in the first and second rows, respectively; [b]sample sizes correspond to the number of pairs for the 16 rounds; standard deviations are presented in parentheses; for each condition, the buy rates are computed across all prices offered.

the session.[118] Our laboratory currency, the "token," was converted to Canadian dollars using a commonly-known exchange rate.

## C. *Results*

Table 3 provides the descriptive statistics for the informed-offeror experimental treatment.[119] Information about the mode and mean offers is provided. The buy rate is defined as the percentage of total pairs in which the offeree decided to buy his partner's business assets.[120] The equitable allocation rate is defined as the percentage of total pairs in which each owner's payoff represented 50% of the business assets.[121]

Our results indicate that informed offerors generally reveal their private information by offering a mean price equal to 144 when the value of the business assets was 250, and a mean price equal to 214 when the value of the assets was 500. Our findings also suggest that equitable outcomes might be generated under asymmetric information when the ex-post design of the Shotgun mechanism involves the informed owners making the buy-sell offers. Specifically, equitable allocations occurred in 60% and 40% of the total cases, when the value of the business assets

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[118] Subjects also received $10 CAD participation fee.

[119] Given the consistency of the aggregate data across rounds since early stages, we decided to include the 16 rounds in our analysis. The qualitative results still hold when only the last 8 rounds of play are considered.

[120] The buy rates correspond to *all* prices proposed by the offerors.

[121] The equitable payoffs are equal to 125 and 250, in case of business assets values equal to 250 and 500, respectively.

Table 4: Descriptive Statistics for the Uninformed-Offeror Treatment

|  | Asset Value | |
| --- | --- | --- |
|  | 250 | 500 |
| Price Offered[a] | 125.00 | 125.00 |
|  | 137.26 | 140.00 |
|  | (34.86) | (39.55) |
| Buy Rate | .49 | .97 |
| Offeror's Payoff | 112.74 | 139.34 |
|  | (34.86) | (37.64) |
| Offeree's Payoff | 137.26 | 360.66 |
|  | (34.86) | (37.64) |
| Equitable Allocations Rate | .82 | .07 |
| Observations[b] | 179 | 61 |

Note: [a]Mode and mean prices are presented in the first and second rows, respectively; [b]sample sizes correspond to the number of pairs for the 16 rounds; standard deviations are presented in parentheses; for each condition, the buy rates are computed across all prices offered.

was equal to 250 and 500, respectively.[122] These results are aligned with our logical arguments and predictions.

The responses of the uninformed owners are also aligned with our predictions: When the informed owner proposed a price equal to 125, the uninformed owner generally bought his partner's assets (90% of the total cases); when the informed owner proposed a price equal to 250, the uninformed owner generally sold his assets to his partner (97% of the total cases).

Table 4 outlines the descriptive statistics for the uninformed-offeror experimental treatment. Our findings are aligned with our logical arguments and predictions: The mode offer was equal to 125 (81% of the total cases, across asset values).[123] Our results also suggest that inequitable outcomes occurred under asymmetric information when the uninformed owners are assigned the role of offeror. Specifically, when the business assets value was equal to 500, equitable allocations occurred only in 7% of the total cases.[124] Our findings suggest that the ex-post implementation of Shotgun mechanisms under asymmetric information will produce equitable outcomes only under the assignment of the role of offeror to the better-informed owner.

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[122] On average (across assets values), the offeror's and offeree's payoffs were equal to 144 and 166, respectively.

[123] The responses of the informed owners are also aligned with our predictions: When the uninformed owner proposed a price equal to 125, the informed owner bought her partner's assets in 59% of the total cases, and sold her business assets to her partner in 41% of the cases; when the uninformed owner proposed a price equal to 250, the informed owner sold her assets to her partner in 100% of the total cases.

[124] In 80% of the total cases, the informed offeree got a payoff equal to 375, when the value of the business assets was equal to 500.

Table 5: Effects of Informed-Offeror Role on Equitable Outcomes
(Tests of Differences across Conditions)

| Conditions | Marginal Effect |
| --- | --- |
| UO vs. | .34** |
| IO | (.21) |
| Observations | 123 |

Note: The columns report the effects on the uninformed player's payoff
due to assigning the role of offeror to the informed Player 1 (probit anal-
ysis using sessions as clusters); robust standard error is in parenthesis;
**denotes significance at the 5% level; observations correspond to number
of pairs

Next, we use regression analysis to more thoroughly test the effects
of role assignment on the likelihood of equitable allocations of the busi-
ness assets between the informed and uninformed owners, in case of
business assets equal to 500. Our analysis involves robust standard er-
rors which account for the possible dependence of observations within
session. We take pairs of conditions and estimate a probit model. This
model includes a treatment dummy variable as its regressor.[125]

Table 5 indicates that the assignment of the role of offeror to the in-
formed player significantly increased the likelihood of equitable alloca-
tions, with respect to the uninformed offeror environment (p = .02).[126] In
fact, as a result of the assignment of the role of offeror to the informed
owner, a higher likelihood of equitable allocations is observed: 40% v.
7%, for the IO and UO conditions, respectively. Thus, there is clear sup-
port for our Hypothesis.

**RESULT:** *When the value of the business assets is equal to 500, the as-
signment of the role of offeror to the informed owner significantly increas-
es the equitable allocation rate.*

### D. *Discussion*

Our insights regarding the appropriate judicial design of Shotgun mech-
anisms are largely confirmed by our laboratory experiments. Our exper-
imental results supported our arguments: (1) inequitable outcomes were
obtained when the uninformed owner made the buy-sell offer and (2) eq-

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[125] The dummy variable takes a value equal to 1 if the observation pertains to the IO con-
dition, and a value equal to 0 if the observation pertains to the UO condition. The probit
model also includes round as an additional explanatory variable to control for learning ef-
fects across rounds. Data for the IO and UO (in case of business assets equal to 500) are
pooled.

[126] The effect of the round is not significant.

uitable outcomes were obtained when the informed owner made the buy-sell offer. When making the buy-sell offer, the informed owner was likely to tell the truth, placing a bid that reflected the true value of the assets. Importantly, the assignment of the role of offeror to the better-informed owner significantly increased the uninformed owner's payoff. The theoretical and experimental findings presented here provide cost-efficiency, equity, and expediency rationales for the judicial design and implementation of Shotgun mechanisms in the resolution of business deadlocks.

The interests of the business parties and, more generally, the interest of society as a whole will be served by the appropriate judicial use of Shotgun mechanisms.


## VI. CONCLUSION

This article advances a proposal to reform the way that courts resolve business deadlocks. We present an economic argument for the use of the Shotgun mechanism as an asset valuation procedure in case of judicially-implemented dissociation or dissolution processes, and demonstrate the alignment of this *cake-cutting* mechanism with current statutory rules and case law. General partnerships and limited liability companies (LLCs), the most commonly chosen legal entities, are the focus of this study.

Our study of the private design and implementation of Shotgun provisions provides relevant insights for the judicial resolution of business deadlock with Shotgun mechanisms. Shotgun provisions have several desirable properties. First, under the right circumstances, the Shotgun mechanism leads to a *fair* and *equitable* division of the assets. Second, Shotgun provisions are *expedient*. In contrast to standard negotiations where there are offers and counteroffers, one party can unilaterally trigger the Shotgun provision and force the timely transfer of assets. Third, Shotgun provisions are *cost-efficient* because they do not require the participation of a costly outside appraiser or auctioneer. Under the wrong conditions, however, Shotgun provisions can backfire. We show that asymmetries between the business owners in terms of information, capabilities, and financial resources might elicit unwanted strategic behavior and opportunism, and hence lead to inequitable outcomes in the private application of Shotgun mechanisms.

Our analysis indicates that the desirable properties of the Shotgun mechanism observed in private settings are also relevant to judicial settings when courts are involved in resolving business disputes. Importantly, we show that the risks associated with asymmetries are often less severe than they are in the private context. Since courts have the ability to design the Shotgun procedure ex-post rather than ex-ante, they are in a better position to identify the presence and nature of asymmetries and tailor the Shotgun mechanism accordingly.

In addition to their logical consistency, and the support from the legal cases discussed in Section IV, our arguments regarding the benefits of ex-post design of Shotgun mechanism are largely confirmed in the laboratory. Specifically, when asymmetric information is present, Shotgun mechanisms might generate inequitable outcomes. Courts, however, can reduce the negative effects of asymmetric information by assigning the role of offeror to the informed owner. Under this design of Shotgun mechanisms, equity is restored. Our logical arguments and our experimental findings provide strong rationales for the judicial design and implementation of Shotgun mechanisms in the resolution of business deadlocks.

Our analysis demonstrates that that the adequate judicial implementation of the Shotgun mechanism as an asset valuation procedure will benefit the parties themselves as well as the society more broadly. Courts should include the Shotgun mechanism in their deadlock resolution "toolbox," and use their expertise to apply the Shotgun mechanism under the appropriate circumstances and design.

APPENDIX

This appendix supplements the discussion of Shotgun mechanisms with asymmetric information presented in Section III by fully characterizing the equilibrium strategies and outcomes.

   Suppose that two co-venturers own equal stakes in a firm with uncertain value x in the set $\{x_L, x_H\} = \{150, 400\}$. $\theta_L = 3/4$ is the likelihood that x = 150 and $\theta_H = 1/4$ is the complementary probability that x = 400. The informed player, who we refer to as Owner 1, knows the true value of x; the uninformed owner, Owner 2, does not observe the value. Thus, this game has one-sided asymmetric information with common values. As in the text, we assume that there is a business deadlock; the assets will be more valuable if ownership is consolidated. Resolving the deadlock will create an additional a = 100 of value, so after the consolidation of ownership the assets are worth x + a in the set {250,500}. We let p represent the buy-sell offer. If Owner 1 purchases Owner 2's stake, the payoff for Owner 1 is x + a – p and the payoff for Owner 2 is p. The equilibrium concept is perfect Bayesian equilibrium.

 *A.  Shotgun Mechanisms with Informed Offeror*

**PROPOSITION 1:**  *Suppose the informed Owner 1 makes the buy-sell offer. There is a fully-separating equilibrium where Owner 1 offers $p_1 = 125$ when x + a = 250 and $p_1 = 250$ when x + a = 500, and Owner 2 buys when $p_1 = 125$ and sells when $p_1 = 250$. [127] The value of the business assets is shared equally by the two owners.*

**PROOF.** First consider the informed Owner's offer. If Owner 1's equilibrium proposal is $p_1(x) = (x + a)/2$ then Owner 2 should be indifferent between buying and selling, since Owner 2's payoff would be (x+a)/2 in either case. So it is rational for Owner 2 to buy when $p_1 = 125$ and sell when $p_1 = 250$. Note that it would not be optimal for Owner 1 to offer $p_1 = 125$ when x + a = 500 since Owner 2 would buy Owner 1's stake, leaving Owner 1 with a net payoff of 125. Similarly, Owner 1 would not offer $p_1 = 250$ when x + a = 250 since Owner 2 would sell and Owner 1 would receive a net payoff of zero.[128] Thus, the strategies outlined in the Proposition constitute a perfect Bayesian equilibrium. ∎

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[127] This separating equilibrium with $p_1$ in the set {125,250} can be supported in other ways as well. For example, it is also an equilibrium for Owner 2 to randomize 50/50 between buying and selling shares at each price offer. This mixed strategy is, however, weakly dominated by the strategies outlined in the proposition.

[128] If Owner 2 observes an out-of-equilibrium offer p* in the range (125,250), then Owner 2 believes that the expected value of the assets is 2p*. With these beliefs, Owner 2 is indifferent between buying and selling and may randomize between buying and selling. Offers in this range are unprofitable for Owner 1.

*B. Shotgun Mechanisms with Uninformed Offeror*


**PROPOSITION 2:** *Suppose the uninformed Owner 2 makes the buy-sell offer. In equilibrium, Owner 2 offers $p_2 = 125$. Owner 1 may either buy Owner 2's stake or sell his stake to Owner 2 if $x + a = 250$, and will buy Owner 2's stake if $x + a = 500$. The value of the business assets is shared unequally, with Owner 1 receiving a higher payoff on average than Owner 2.*


**PROOF.** Any offer not equal to 125 or 250 is dominated for Owner 2, and so we can limit our attention to price offers $p_2$ in the set $\{125, 250\}$.[129] If Owner 2 makes a buy-sell offer $p_2 = 125$ then Owner 2 will receive payoff of 125 regardless of the true value of the business assets. To see why, suppose that $x + a = 500$, and that Owner 1 knows this. Owner 1 would certainly choose to buy Owner 2's stake at $p_2 = 125$, giving Owner 1 a payoff of $500 – 125 = 375$ and Owner 2 a payoff of 125. If $x + a = 250$, however, then Owner 1 would be indifferent between buying and selling his stake at a price of $p_2 = 125$ and, in either case, Owner 2 receives a payoff of 125. Owner 2 will earn a lower payoff on average if he proposes $p_2 = 250$. At this lower price, Owner 1 is indifferent between buying and selling if $x + a = 500$, giving Owner 2 a payoff of 250. If $x + a = 250$, however, then Owner 1 would certainly choose to sell his stake to Owner 2. The latter scenario is more likely and, on average, Owner 2 can expect to earn a payoff of $(.25)(250)+(.75)(250 – 250) = 62.5$ when he offers $p_2 = 250$. Owner 1's average payoff is higher than that of Owner 2, $(.25)(250)+(.75)(250) = 250$. ∎


*C. Point Predictions*

Table A1 summarizes the point predictions. Consider the top half of the table. When the offeror is the informed player, the offeror makes an offer equal to 125 when $x + a = 250$, and an offer equal to 250 when $x + a = 500$. The uninformed offeree buys when the price is equal to 125, and sells when the price is equal to 250. Now consider the bottom half of the table. When the offeror is the uninformed player, the offeror makes an offer equal to 125. When $x + a = 250$, the informed offeree is indifferent between buying and selling. When $x + a = 500$, the offeree decides to buy. As a result, inequitable payoffs are observed in the case of uninformed offerors.

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[129] Suppose $p_2 > 250$. Owner 1 would strictly prefer to sell his shares regardless of the true value of the assets for all offers above 250, prompting Owner 2 to reduce the offer. Suppose $p_2 < 125$. Owner 1 would strictly prefer to buy shares at this price, prompting Owner 2 to raise the offer. Offers $125 < p_2 < 250$ are similarly dominated.

Table A1: Point Predictions for Shotgun Mechanisms under
Asymmetric Information

| | Asset Value | |
| --- | --- | --- |
| | $x + a = 250$ | $x + a = 500$ |
| Informed Offeror | | |
| Buy-Sell Price | 125 | 250 |
| Response | Buy | Sell |
| Offeror's Payoff | 125 | 250 |
| Offeree's Payoff | 125 | 250 |
| Uninformed Offeror | | |
| Buy-Sell Price | 125 | 125 |
| Response | Buy or Sell | Buy |
| Offeror's Payoff | 125 | 125 |
| Offeree's Payoff | 125 | 375 |