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The Lemons Problem in Markets for Strategy

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Research in corporate governance has predominantly focused on the moral hazard problem and governance mechanisms that mitigate it. In this paper, we instead focus on adverse selection as an alternative agency problem, emphasizing well-intentioned managers making strategic choices they believe will increase firm value, but facing difficulty informing capital market participants about the value of these choices. We suggest that more valuable strategies are more difficult for market participants to evaluate, and that pressures on managers to adopt easy-to-evaluate strategies can generate this adverse selection or "lemons" problem. We argue that governance mechanisms designed to mitigate moral hazard operate differently here, in some cases exacerbating rather than solving the adverse selection problem. We further propose that firms with unique and complex strategies may migrate to private equity as a partial remedy.

Keywords: adverse selection; capital markets; corporate governance; intermediaries; moral hazard
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Introduction

Over the past few decades, resolving agency problems in corporate governance has emerged as a prominent view of the path to increased firm value in strategic management research (e.g., Dalton et al. 2007, Eisenhardt 1989). In this perspective, strongly influenced by work in corporate finance and accounting, but also widely adopted in the management literature, increasing firm value requires resolving the "fundamental agency problem" that arises from the separation of ownership and control (Bebchuk and Weisbach 2010, Jensen and Meckling 1976, Dalton et al. 2007, Castaner and Kavadis 2013, Reuer and Ragozzino 2006, see also Hambrick et al. 2008). The literature particularly highlights the need to resolve a "moral hazard" or shirking problem between owners of the firm and its managers, since managers often possess weaker incentives to increase the value of the firm than owners (Jensen and Meckling 1976, Amihud and Lev 1999, Certo et al. 2003). Viewed through this moral hazard lens, managers' strategy choices reflect their personal interests, which may include a preference for lower risk strategies. When these personal interests diverge from shareholder interests, managers compromise firm value in pursuit of their self-interest (Amihud and Lev 1981). When incentives converge, managers maximize firm value. Correspondingly, a large stream of research in corporate governance focuses on identifying mechanisms that reshape managers' incentives to align with owners or provide owners with greater control over managers' decisions. Thus, large block shareholders, independent boards of directors, and incentives that reward managers for outcomes of interest to owners (e.g., Denis et al. 1999, Certo et al. 2003, Amihud and Lev 1999, Edmans 2009) may all serve as vehicles to increase shareholder value. Reflecting on this emphasis on the moral hazard problem, strategy researchers have noted: "...the fundamental agency problem and its mitigation has been a dominant theme, providing a foundation for cross-disciplinary corporate governance research for decades...Our faith is in the intransigence of the fundamental agency problem and the unremitting need for its mitigation" (Dalton et al. 2007, p. 40). In the governance literature, "the fundamental agency problem" is moral hazard, and the path to value creation is correcting it by ensuring that managerial choices coincide with investor opinions, beliefs and interests.

In this paper we explore an alternative and comparatively neglected perspective that emphasizes a distinctly different, and in many ways logically opposite, impediment to value creation. This perspective emphasizes well-informed, well-intentioned managers selecting strategies that they believe will maximize firm value, as measured by the future cash flows of the firm, but confronting investors unable (or unwilling to incur the costs) to decipher that value. The challenge for investors is that an accurate assessment of a firm's present value requires forecasting the future performance of the firm's selected strategy, where strategies are forward looking plans of action (Mintzberg 1987)[1] or theories to guide choices

[1] Eric Van den Steen (2014) has recently offered a compelling definition of strategy as the "smallest set of (core) choices to optimally

and decisions (Ghemawat 2005, Gavetti and Rivkin 2007, Van den Steen 2014, Felin and Zenger 2009) about the composition of physical assets and human capital, including which to accumulate, and how to develop and deploy them (Foss and Klein 2012; Zenger et al. 2011, p. 94; Montgomery and Wernerfelt 1988; Barney 1986). Thus, determining the present value of a firm (i.e., its discounted future cash flow) is more than merely summing up the market value of current assets. Instead, it entails forecasting the future value of what are frequently previously unseen combinations, where value is some complex multiplicative function of choices about physical assets and human capital, shaped by the manner in which they are composed and deployed. Thus, accurate valuation of a firm requires understanding and evaluating these strategies or managerial theories that guide the assembly of a firm's assets into valuable compositions of activities and routines over time.[2]

Equity markets—markets where firms seek financing—operate then as a marketplace in which claims on the future value of these strategies are bought and sold. Thus, in essence, equity markets can be considered "markets" for firms' strategies, distinct from the markets where a firm's products or services are bought and sold and distinct from markets in which inputs are procured and accessed. Investors' decisions to buy and sell a firm's stock reflect cognitive assessments of the firm's likely future performance relative to its current stock price. The problem that arises in these "markets for strategies" has many similarities with other markets where the quality of the product being sold is difficult to evaluate. In such markets, evaluation difficulty allows sellers to disguise low quality as high quality (Akerlof 1970), and results in high quality products being discounted relative to their true value. In some cases, the discounts are sufficiently large such that high quality products are withheld from the market altogether—a problem of "adverse selection" or a "lemon's problem" (Akerlof 1970). As discussed in the finance, entrepreneurship, and strategy literatures, similar logic has been applied in research on capital markets (Rajan 2012, Sanders and Boivie 2004, Myers and Majluf 1984, Litov et al. 2012, Bruton et al. 2009, Zenger 2013). When strategies are difficult or costly to evaluate, managers have the potential to deliberately disguise or—perhaps due to overconfidence (Wu and Knott 2006)—promote a lower quality strategy as higher quality.[3] This information asymmetry and the potential resulting behaviors it might allow cause financing costs to rise, resulting in a valuation discount (Myers and Majluf 1984, Sanders and Boivie 2004). This discount is a "lemons" discount that, through the mechanisms we explain in this paper, may then further discourage the selection of valuable, but difficult to evaluate, strategies.

We emphasize the ideas that adverse selection in equity markets is worthy of study is at least as important as the moral hazard problem, and is a problem that has been comparatively underemphasized in the governance literature in strategy. In addition, an important element of the problem in markets for strategy—that we further develop in this paper—is that the scope of information asymmetry is both coincident with strategy selection and positively correlated with strategy quality. That is, in selecting a strategy with a necessarily uncertain future value, managers also select the scope of the information problem they impose on investors. For some strategies, the information burden imposed is trivial. For other strategies, the information burden is substantial, as prior research suggests (and as we develop later) that sustainably valuable strategies are also likely to be costly to analyze. Strategy logic argues that to create sustainable long term value, strategies must be novel or unique and also difficult or costly to imitate (Bowman 1974, Rumelt 1984, Barney 1986, Montgomery and Wernerfelt 1988, Brandenburger and Stuart 1996, Porter 1996). To create and sustain value, firms must attain strategic positions where others are not, see value in opportunities and assets that others cannot, or exploit unique resources to which others have no access (Porter 1996, Rajan 2012, Barney 1986). To be sustainably valuable, strategies also need to be inimitable; if easy imitation renders a strategy common, it no longer creates value for the firm. Indeed, Becker (1972) defines economic

guide the other choices" (p. 2). Kenneth Andrews (1971, p. 13) defines strategy as "the pattern of decisions in a company that determines and reveals its objectives, purposes, or goals, produces the principal policies and plans for achieving those goals, and defines the range of business the company is to pursue, the kind of economic and human organization it is or intends to be, and the nature of the economic and noneconomic contribution it intends to make to its shareholders, employees, customers, and communities."

[2] Gavetti and Rivkin (2007, p. 420) correctly note that strategies have a dual composition as both theories and compositions of assets. They argue that "strategy exists in managers' minds—in their theories about the world," but they also note that strategies are embodied in the firm's activities. Thus, part of strategy therefore "occurs in the world of cognition and comprises the mental processes that mold particular theories about the firm and its environment," whereas the other part "unfolds in the world of action and consists of mechanisms that shape what a company actually does." Our approach here is to highlight that understanding the present value of a strategy's future performance involves assessing both elements, and not merely observing or valuing assets in isolation.

[3] "Quality," analogous to the idea of product quality, here refers to the present value of the firm's future cash flows.

rents as "reward[s] for scarcity of superior efficiency that . . . vanish as [they become] common . . . " (p. 77).

Hence, uniqueness is a necessary condition for value creation, but uniqueness also renders strategies unfamiliar to investors and other capital market participants, and elevates the costs to evaluate and assess (Rajan 2012, Sanders and Boivie 2004, Litov et al. 2012). Correspondingly, strategic complexity, i.e., strategies with multiple interacting elements or decisions (Rivkin 2000), heightens causal ambiguity and hinders replication. However, strategies that are difficult for rivals to understand and imitate are similarly difficult for investors and capital market actors to understand and value. The elevated information burden imposed by valuable but unique or complex strategies may further lead to discounted prices in capital markets (Litov et al. 2012, Rajan 2012, Sanders and Boivie 2004, Myers and Majluf 1984, Bruton et al. 2009, Guo et al. 2004) or to the selection of strategies that are more familiar, but perhaps less valuable. Thus, much like the more frequently examined moral hazard problem, the problem of adverse selection in markets for strategy may give rise to managers deviating from value-maximizing strategy choices. However, here the deviations from optimal strategic choices are not driven by opportunistic managers engaging in self-interested behavior including risk avoidance, but by managers seeking to improve their current stock price by alleviating the discount that arises as investors are unwilling or unable to assess this valuable, but costly to analyze, "product." While the result may not be a market for strategies that is full of lemons, the result may be a capital market rife with compromise in selected strategies.

Here, we conceptually explore the logic and some evidence to support the presence of this lemon's problem in capital markets. We propose that the particular difficulty associated with assessing valuable strategies and the resulting stock price discount may cause managers—focused on maximizing the current market value for their equity—to select strategies that are less unique and less complex, and therefore potentially less valuable in the long term. We highlight the nature of this strategic paradox confronted by managers and provide a clear alternative explanation to moral hazard for strategies that deviate from value maximization. We further assess the likely influences of governance remedies that have been widely studied in the context of the moral hazard problem, including incentives, boards of directors, and blockholders, now applied in the context of the adverse selection problem. In some cases, we note that the governance mechanisms that solve moral hazard may exacerbate the adverse selection problem. In other cases, we suggest that governance remedies espoused to elevate a firm's value by remedying moral hazard may instead increase firm value by mitigating the adverse selection problem. We further highlight the promise of private equity for overcoming information asymmetry and the adverse selection problem.

Theory Development

Adverse Selection in Prior Research

Although two agency problems—moral hazard and adverse selection—arise from information asymmetries between owners and managers, prior research in finance, management, and strategy has focused considerably more attention on moral hazard (e.g., Dalton et al. 2007, Rajan 2012). Problems of adverse selection arise in markets where obtaining information about the quality of a product or service is costly or difficult. Akerlof (1970) first illuminated this adverse selection or "lemons problem" with the used car market. In this market, buyers have difficulty discerning the true quality of used cars, leaving them to assess value from observable attributes such as age and mileage and average estimates of quality. This valuation approach encourages those with low quality cars or "lemons" to sell their vehicles, but also encourages those with high quality vehicles to withhold them from the market. As average quality in the market diminishes in response, prices decline, encouraging those with even moderate quality cars to withhold their vehicles. The theory predicts that in equilibrium, without some remedy, the resulting market will be composed entirely of lemons. Buyers and sellers therefore invest in a variety of mechanisms including quality measurement, third party certification, and signaling to limit the negative effects of such adverse selection.

Scholars have empirically studied adverse selection problems in a range of settings including wholesale car markets (Genesove 1993), insurance markets (Finkelstein and Poterba 2004), firms' choices of foreign locations (Shaver and Flyer 2000), CEO firings (Zhang 2008), and alliances and acquisitions (Reuer and Ragozzino 2008). Models of information asymmetry and adverse selection have also been applied in examining behavior in capital markets (Hubbard 1998, Myers and Majluf 1984, Stiglitz and Weiss 1981, Jensen and Meckling 1976). The general logic in this work is that when information about the quality of a firm's investments is costly or difficult to obtain, firms must pay a premium to fund these investments through capital markets, under the presumption that if the investment was truly high quality the firm would choose to fund it through internally-generated cash or managerial wealth (Myers and Majluf 1984). In other words, the future value of these publicly financed investments is discounted.

Capital markets, however, are not merely settings in which current investments are funded. Rather, in

capital markets, investors buy and sell claims on the future returns that they expect will flow from the current strategies selected by managers. Thus, capital markets function as "markets for strategies." These strategies are forward looking plans of action, essentially theories that reveal paths of ongoing value creation, and thereby guide choices about the composition of resources and activities to develop and deploy, as well as the strategic positioning of the firm (Mintzberg 1987, Collis and Rukstad 2008, Porter 1996, Van den Steen 2014, Gavetti and Rivkin 2007). Thus, evaluating strategies is challenging, since it is not merely summing up the market value of the assets, but assessing the future value of managers' theories of how value will be created. In some cases, strategies are quite explicitly stated, while in other instances strategies are discernable only from observing patterns in past strategic choices. Investors then evaluate these strategies, implicitly or explicitly forecast a firm's future returns, and make decisions to buy and sell a firm's stock. Forecasting these future returns—the outcomes of firms' strategies—is extraordinarily difficult and rife with uncertainty. In Frank Knight's language, they often "deal with situations that are far too unique . . . for any sort of statistical tabulation to have any value for guidance" (cited in Van den Steen 2013, p. 2). Managers, however, may have more information about the value of their strategies than investors, but face real impediments in effectively revealing or credibly signaling that value (He and Wang 2009). Moreover, managers have incentives to tout the value of their strategies, even excessively, or they may simply be overconfident (Wu and Knott 2006), leaving investors uncertain about the accuracy of management projections of value. The result is a market setting with acute information asymmetry and a clear opportunity for problems of adverse selection to shape outcomes.

Prior work has explored the important role of information asymmetry between managers or entrepreneurs and investors in shaping capital markets. Scholars in the entrepreneurship literature have considered the influence of information asymmetry and adverse selection as entrepreneurs seek funding from prospective investors for their inherently novel ideas (Shane and Cable 2002, Bruton et al. 2009, Sanders and Boivie 2004, Huyghebaert and Van de Gucht 2004, Dushnitsky and Kleuter 2011, Certo 2003, Guo et al. 2004). Beyond entrepreneurial settings, scholars in finance and strategy have also examined the influence of heightened information asymmetry between firms and investors. Finance scholars note that although intangible assets are frequently a key source of value, their value may be invisible to investors in the short term (Edmans 2011), making it more difficult for market participants to assess (e.g., Amir et al. 2003, Barth et al. 2001). In work in strategy, researchers have also highlighted the link between intangible, hard to value assets and information asymmetry and the potential for adverse selection (Reuer et al. 2013). Similarly, in their study of "innovative knowledge assets" and firm performance, He and Wang (2009, p. 919) note: ". . . the same characteristics of innovative knowledge assets that often enable them to be sources of performance advantages can also lead to high levels of information asymmetry among managers and owners."

Our effort here is to explore more broadly the role that information asymmetry plays as firms, both public and private, seek to fund their strategies in capital markets. We particularly focus on the elevated information asymmetry and associated valuation discount and potential for adverse selection that arise as firms pursue more unique, novel, or complex strategies and seek to fund them in public equity markets. Consistent with recent work in the strategy field, we conceptualize strategies as theories of value creation that guide choices about the combinations and composition of physical and human assets that a firm accumulates, develops, and deploys (Ghemawat 2005, Zenger et al. 2011, Gavetti and Rivkin 2007). We focus specifically on the characteristics of uniqueness, novelty, and complexity in the asset and activity compositions that result, as these are attributes of strategies described in prior research that lead to sustainable value creation, but that also increase information asymmetries and heighten the difficulty of assessing future value. Our theory encompasses both corporate strategy (strategic choices about which industries a firm will participate in, i.e., the asset and activity compositions to deploy across industries) as well as business-level strategy (strategic choices about the asset and activity compositions to deploy within a particular industry).

Analysts and Discounts for Costly-to-Analyze Strategies

In public equity markets, important responsibility for evaluating the likely future value of a firm's strategy is carried out by securities analysts (Jensen and Meckling 1976, Chung and Jo 1996, Schipper 1991, Zuckerman 1999, Michaely and Womack 1999). Sell-side analysts typically cover a set of firms in a single industry, providing information to investors about the quality of a firm's strategy through forecasts of firms' earnings and "buy," "hold," and "sell" recommendations on firms' stocks. Favorable forecasts and recommendations from analysts positively affect firm valuation by both reducing uncertainty about future performance and serving as a "marketing" arm for the security (Rao and Sivakumar 1999, Zuckerman 1999). Empirical evidence shows that analyst coverage positively influences firm value (Hong et al. 2000,

Elgers et al. 2001) and conversely, that a lack of coverage is associated with a discount in stock value (Litov et al. 2012, Zuckerman 1999). This work supports Jensen and Meckling's (1976) expectation that "the benefits of the security analysis activity [are] reflected in the higher capitalized value of the ownership claims to corporations . . ." (p. 355).

The predominant view of securities analysts is that they are sophisticated users of information who have better private information on the firms they cover than is available to investors (Frankel et al. 2006, Amir et al. 2003, Lys and Sohn 1990). Thus, analysts are generally believed to improve the informational efficiencies of capital markets (e.g., Ramnath et al. 2008, Wiersema and Zhang 2011). It seems they would play an important role in mitigating the adverse selection problem by carefully assessing quality and providing validation, as suggested in prior literature on the role of intermediaries in markets (e.g., Zuckerman 1999, Rao 1994, Jin and Leslie 2003, Reinstein and Snyder 2005, Waldfogel and Chen 2006). We might therefore expect that unlike entrepreneurial settings, public equity markets, where adequate incentives motivate the participation of intermediaries, would be less prone to information asymmetries and discounting.

At the same time, however, evidence from a growing body of prior research suggests conditions that elevate the costs of analyzing firms' strategies also shape analysts' effectiveness as information intermediaries.[4] In particular, strategy choices that are new, unique, or complex relative to industry peers heighten the difficulty analysts face in accurate evaluation. In a study of corporate strategy choices (i.e., a firm's choices about the combination of businesses in which to participate) among 7,600 publicly traded firms over 23 years, Litov et al. (2012) found that firms with unique corporate strategies—firms pursuing unusual combinations of businesses—are less likely to be covered by analysts, and are correspondingly more likely to suffer a stock price discount. Moreover, they found evidence linking strategy uniqueness to elevated effort required. Analysts covering firms with more unique strategies are simply able to cover fewer other firms on average. Uniqueness appears to raise the information costs for analysts in assessing these firms' strategies, possibly leading them to abandon coverage or choose not to cover firms.

Corporate diversification, i.e., the number of distinct businesses or product lines in which a firm competes, also increases the complexity of the analyst's task, and therefore the information costs of coverage. When a firm's scope spans a wide range of industries, analysts are required to develop expertise in multiple industries or collaborate with other industry-specialized analysts across multiple industries. Since analysts choose which firms to cover, they may simply avoid or drop coverage when the information costs to analyze a firm become excessive. Bhushan (1989) shows that the number of analysts covering a security declines as the total number of SICs in which a firm operates increases, and Ferris and Sarin (2000) similarly show that fewer analysts follow diversified firms. Zuckerman (1999) shows, similarly, that that as firms' diversification strategies deviate from the relatively narrow industry categories covered by analysts, they receive less analyst coverage, resulting in a valuation discount. The misfit between the firms' strategies and accepted ways of valuing firms within a particular category elevates the costs of assessment by market intermediaries.

The cost of analysis also increases when firms pursue novel strategies unfamiliar to analysts covering a particular industry. Benner (2010) finds, in a context of uncertain technological change, that firms pursuing more radical technology investments in response to new technology received less attention from securities analysts than firms adopting incremental extensions of existing technology. Feldman (2015), in studying radical changes in corporate scope as firms spun off their traditional, legacy businesses, finds that such changes increased information costs and prompted discontinued coverage for those analysts who took up their coverage when the legacy business was the firm's dominant business.

Additional support for the relationships among the cost of analyzing strategies, analyst coverage, and market valuation is provided by a large body of research showing that strategic changes that simplify strategies, such as divestments or spin-offs, decrease information asymmetries and are often associated with higher valuation (Comment and Jarrell 1995; John and Ofek 1995; Markides 1992, 1995; Desai and Jain 1999; Krishnaswami and Subramaniam 1999). Gilson et al. (2001) find, specifically, that these narrower or simplified strategies also receive more—and more accurate—analyst coverage. Litov et al. (2012) similarly demonstrate that as firms decrease their level of diversification, and therefore their complexity, their analyst coverage increases, in turn affecting firm valuation.

The nature of these effects is often captured in the language that analysts use to evaluate complex or novel strategies. A particularly revealing description is illustrated in a 1999 analyst report from PaineWebber pushing for Monsanto's break-up as a life sciences company (quoted in Litov et al. 2012, pp. 1800–1801):

> The life sciences experiment is not working with respect to our analysis or in reality. Proper analysis of

[4] Prior research has also shown a number of other factors that lead to errors in analysts' forecasts, such as career concerns (Hong and Kubik 2003) or reactions to CEOs' charismatic vision statements (Fanelli et al. 2009).

> Monsanto requires expertise in three industries: pharmaceuticals, agricultural chemicals and agricultural biotechnology. Unfortunately, on Wall Street, particularly on the sell-side, these separate industries are analyzed individually because of the complexity of each. This is also true to a very large extent on the buy-side. At PaineWebber, collaboration among analysts brings together expertise in each area. We can attest to the challenges of making this effort pay off: just coordinating a simple thing like work schedules requires lots of effort. While we are willing to pay the price that will make the process work, it is a process not likely to be adopted by Wall Street on a widespread basis. Therefore, Monsanto will probably have to change its structure to be more properly analyzed and valued.

The excerpt highlights the added information costs of evaluating complex or novel combinations and further suggests that analysts make coverage choices in part based on the effort required to provide that coverage.

In summary, prior research in strategy, entrepreneurship, and finance shows generally that strategies that involve novelty, uniqueness, or complexity elevate information asymmetries and the associated costs of analysis. As a result, such strategies are correspondingly undervalued in public equity markets, i.e., stock prices are discounted.[5] The prior work on analysts further suggests that even for established firms in public equity markets, analysts do not necessarily mitigate information asymmetry and the associated potential for adverse selection. Rather, their behaviors are likely to further spur discounts, as they economize on information costs by reducing or dropping coverage when unique or complex strategies are costly to analyze (Litov et al. 2012, Zuckerman 1999). While information intermediaries may partially alleviate this lemons discount, their behavior is also shaped by the inherent costs of evaluation associated with a given strategy, and thus the lemons discount for difficult to evaluate strategies likely prevails. These ideas lead to two predictions: First, *to the extent a firm's strategy is unique, novel, or complex, there will be greater information asymmetry and thus it will be more difficult and costly for market participants* (*investors and analysts*) *to evaluate.* Second, *to the extent a firm's strategy is costly or difficult for market participants* (*investors and analysts*) *to evaluate, the firm's stock price will be discounted* (*i.e., it will incur a "lemons discount"*) *in public equity markets, all else equal.*

[5] Finance research argues that "prices" in this market, i.e., stock prices, reflect the long term discounted value (net present value or NPV) of the firm's future forecast financial performance, i.e., the discounted present value of future cash flows from its pattern of strategic choices. Therefore, in discussing the true "value" of strategic choices, there is necessarily a longer-term element that is reflected (with varying degrees of accuracy) in the current stock price of the firm.

Uniqueness and Inimitability as Characteristics of Valuable Strategic Choices

The challenge is that while uniqueness, novelty, and complexity render strategies difficult to evaluate and spur a discount, these attributes are also important to the long term value of strategies as well as the sustainability of that value. Valuable strategies involve unique or novel bundles of activities and resources that are difficult and costly to imitate (e.g., Barney 1986, 1991; Porter 1985, p. 20; Porter 1996; Bowman 1974; Rumelt 1984; Montgomery and Wernerfelt 1988; Brandenburger and Stuart 1996; Rivkin 2000; Rajan 2012). The precursors of sustainable value include uncommon differentiated positions, an uncommon means to a sustained cost advantage, or a unique vision of how value might be hidden in strategic factor markets or realized by exploiting combinations of difficult-to-imitate assets. Strategies built from uncommon combinations of interdependent assets and complex strategies with multiple interdependent elements increase causal ambiguity and heighten the difficulty competitors face in imitation (e.g., King and Zeithaml 2001, Reed and DeFillippi 1990, Rivkin 2000). In examining corporate strategy choices, Litov et al. (2012) found that more unique corporate strategies were generally more valuable even as they received a discount (i.e., they incurred a "discounted premium") because of their elevated cost of analysis. Similarly, work in strategic management has focused on the relationship between intangibles such as "innovative knowledge assets" and performance, finding a positive influence of such assets on performance (e.g., He and Wang 2009).

Recent work by finance scholars echoes similar ideas. Rajan (2012) notes in his 2011 presidential address to the American Finance Association that: "To create [value], the entrepreneur has to go out on a limb, distinguishing herself from the rest of the herd of potential competitors and thus potentially earning sustainable profits (providing that the limb is narrow enough, the firm's capabilities distinctive enough, or its innovation continuous enough that others cannot follow)... But a differentiated, unique enterprise is also hard for outsiders to finance" (p. 1175). Other finance scholars have similarly stressed that competitive advantage for firms is increasingly based on intangibles such as human capital or investments in R&D (Edmans 2009). As Edmans (2011) shows in his study of the long run stock returns for firms with higher employee satisfaction, such valuable strategies based on hard-to-observe intangibles are fundamentally difficult to evaluate. Thus, creating value requires managers to discover valuable and novel markets, positions, and combinations of activities and assets that are currently unseen by others or difficult to imitate once revealed. If strategies are common and easily evaluated, competitors can frequently

achieve the same outcomes, leaving no opportunity for value creation or above-normal returns (Barney 1986, Litov and Zenger 2015). More common, less complex, and therefore more easily understood strategies are more likely to be imitated within product markets and invite competition within factor markets for the resources to execute the selected strategy (Barney 1986). Such imitation and competition therefore erodes sources of economic rent. Thus, although clearly not all unique, novel, or complex strategies are valuable, we propose that *strategies that generate the greatest long term value are likely to be more unique, novel, or complex than strategies that generate lower long term value.*

However, as we noted earlier, this same uniqueness and complexity that renders strategies sustainably uncommon and inimitable also make them costly for analysts to evaluate. This information asymmetry and increased cost invites a problem of adverse selection that underpins a discount, i.e., a lower current stock price. As a result, despite the potentially greater longer term value and sustainability of unique and complex strategies, they are likely to incur a discount in the current stock price, giving the appearance that managers have selected less (rather than more) valuable strategies.

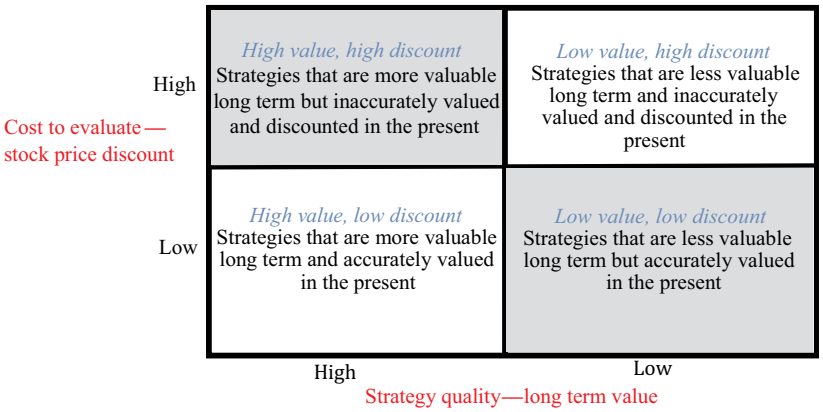
The Lemons Problem and Managerial Responses

Despite the potential advantages of unique and complex strategies for creating and sustaining value if successfully pursued over the longer term, the lemons discount that accompanies them may prompt a strategic compromise—managers may select a strategy that, while ultimately less valuable, avoids the near term lemons discount. In the used car market, Akerlof (1970) conjectures that high quality cars are withheld from the market due to the lemons discount they receive. In our setting, where managers seek funding for their strategies, these dynamics differ from the used car market. Managers can directly alter the content of their strategies, and therefore the extent of the information problem inherent in the "product" they seek to sell. In particular, they can choose to emphasize combinations of assets and activities that are more common or familiar and are therefore more easily assessed. A large body of recent empirical evidence provides support for our argument that managers are susceptible to the pressures of selecting strategies with lower evaluation costs and will change their strategies to alleviate stock price discounts. Recent work highlights changes in firms' strategies and actions arguably taken to alleviate pressures from analysts (e.g., Westphal and Graebner 2010, Westphal and Clement 2008, Zuckerman 2000, Zhang and Gimeno 2010, Wiersema and Zhang 2011, Benner and Ranganathan 2012). For example, Zuckerman (2000) shows that pressures that arise from a lack of analyst coverage and the resulting discounted stock prices push firms to reshape their strategies to better match their analysts' expertise. Zhang and Gimeno (2010) show that firms facing earnings pressures pursue strategies that are more easily assessed and perceived as valuable in the short term, and abandon long term investments. Wiersema and Zhang (2011) find that pressures arising from negative analyst recommendations result in CEO dismissals. Finally, Benner and Ranganathan (2012) find that firms either reduce their investments in new technologies in response to pressures from negative analyst recommendations or announce share repurchases, a common action taken to trigger an increase in stock price (e.g., Zajac and Westphal 2004).

Prior work also shows that managers are generally sensitive to pressures to improve stock price (i.e., they respond to pressures from investors) in ways that also influence firms' strategies and investments (Stein 1989, Bushee 1998). For example, research suggests that firms under short-term pressures for improved earnings will reduce investments in intangibles such as R&D expenses or advertising (Bushee 1998). Edmans (2009, p. 2482) similarly notes that "competitive success increasingly depends on intangible assets such as human capital and R&D capabilities . . . [and] building such competencies requires significant and sustained investment . . . However, managers may fail to invest if they are concerned with the firm's short-term stock price." More support for these ideas is evident in research that documents the potential for market pressures to lead firms to pursue commonly-adopted strategies that might initially trigger improved stock price; for example, undertaking process management or quality improvement programs (e.g., Hendricks and Singhal 1996, Westphal et al. 1997)—strategies that are easily observed, but also easily imitated and therefore unlikely sources of sustainable value creation (e.g., Benner and Veloso 2008, see Porter 1996, Lieberman and Montgomery 1988).

In sum, prior work suggests that managers will be responsive to pressures from investors and analysts to alleviate the stock price discounts that, in our case, arise from pursuing strategies that are difficult to evaluate. Thus, we argue that despite the higher future returns that may systematically accompany more novel, unique, and complex strategies, the discount that firms incur from the heightened challenge of evaluating these strategies will tend to pressure managers to retreat from such strategies and choose more common, easily assessed strategies that alleviate the discount. Beyond pressures to retreat from particular strategies, these compromises in strategy choice due to the lemons problem may also reflect deviations from strategies never introduced (and therefore

Figure 1 **Managerial Tradeoffs—Strategy Quality vs. Stock Price Discount**



not observed) in the market due to their inherent and particularly high evaluation costs. Thus, we predict that *managers of firms traded in public equity markets will face pressures to select strategies that have lower evaluation costs for market participants over strategies that have higher evaluation costs* (*and therefore*, *that are more common and less unique*, *novel*, *or complex*).

This logic illustrates a fundamental strategic tradeoff faced by managers. As previously noted, the same uniqueness, novelty, or complexity that make strategies more sustainably valuable also make them more costly to analyze. This leaves managers frequently facing a paradox as they select strategies. We illustrate these tradeoffs in Figure 1. Managers would prefer to choose highly valuable strategies that are also easily and accurately evaluated (lower left quadrant). These strategies yield maximum long run returns and no discount in the present. However, because sustainable value arises from uniqueness and inimitability, this combination of sustainably valuable *and* easy to evaluate may be exceptionally rare or even nonexistent in many strategic settings. Therefore, the strategic dilemma facing managers is the choice between valuable strategies that are difficult to assess due to unfamiliarity or complexity (upper left), and common strategies that are more easily assessed, but that are less valuable (lower right). Choosing a higher value strategy that is difficult to imitate because it is unfamiliar or complex, and therefore costly to understand and evaluate, maximizes the expected value of future returns. However, these strategies also impose higher information costs on capital markets, resulting in a discount in the short term i.e., a lower current stock price.

This managerial tradeoff between strategy quality and the likely greater information costs associated with quality (i.e., the cost or difficulty to evaluate it) simply highlights the "lemons" problem that exists in the market for strategies. There is, however, an important distinction between the classic lemons problem in used car markets and the lemons problem faced in the market for strategies. In the classic lemons problem as described by Akerlof (1970), the scope of the information problem (i.e., the cost of assessing value) is exogenously determined and static. In our setting, managers in selecting a strategy also choose the scope of the lemons problem they impose on capital markets. Thus, managers choose both the quality (i.e., future value) and the information asymmetry problem, but not independently of each other. Indeed, as previously noted, these dimensions of a strategy are likely to be negatively correlated among the set of options managers face, thereby creating the manager's fundamental strategy dilemma. Managers' strategic choices both drive future returns and shape the information burden imposed on capital markets. While this dilemma is unlikely to purge the market of all complex or unique strategies, it will likely generate discounts for these strategies, and encourage marginal shifts away from their selection.

The Moderating Influences of Governance Mechanisms

Thus, the moral hazard and adverse selection cases can result in the same outcome—managers choosing strategies that are not shareholder-value maximizing. Both are agency problems; however, the mechanisms underlying these agency problems differ, and these differences are important particularly when considering the potential remedies. Within much of the literature, governance remedies for agency problems have either explicitly or implicitly targeted moral hazard, highlighting reshaped incentives and monitoring as the primary mechanisms to mitigate managerial shirking (e.g., Zajac and Westphal 1994, Beatty and Zajac 1994, Rediker and Seth 1995, He and Wang 2009). Incentive remedies typically involve motivating managers to attend to shareholder interests as reflected in current share prices in public equity markets. Monitoring remedies involve facilitating investor

Table 1 Mechanisms for Value Creation and Predicted Outcomes of Governance "Remedies": Moral Hazard vs. Adverse Selection

Governance remedy	Moral hazard	Adverse selection
High-powered incentives (i.e., stock options)	*Mechanism*: Motivates managers to increase stock price, aligning managers' interests with shareholders' *Predicted outcome*: Higher managerial effort and superior strategic choices	*Mechanism*: Encourages managers to select easy-to-evaluate strategies (i.e., more common and potentially more imitable) to eliminate the lemons discount arising from information asymmetries *Predicted outcomes*: Compromised strategy choices; the adoption of more common strategies and less unique strategies Lower shareholder value in relation to optimum
Independent board members	*Mechanism*: Provides managerial monitoring to ensure managers make decisions that maximize shareholder value *Predicted outcome*: Higher shareholder value	*Mechanism*: Exacerbates adverse selection, encouraging strategic compromise. Outside board members are unlikely to understand the industry or firm-specific theories of how value will be created from combinations of assets and activities *Predicted outcomes*: Heightens pressure to choose more common, easily evaluated strategies Lower shareholder value
Large block shareholders with long time horizons (i.e., informed blockholders)	*Mechanism*: Disciplines and monitors managers to ensure managers make shareholder value-maximizing decisions *Predicted outcome*: Higher shareholder value	*Mechanism*: Mitigates information asymmetries; sophisticated shareholders have the ability to accurately evaluate the long-term value of a firm's strategies. Holding for the longer-term reduces pressure on managers to change strategies and allows the value of these strategies to play out *Predicted outcome*: Higher shareholder value
Private equity	*Mechanism*: Disciplines and monitors managers (similar to large blockholders with longer time horizons) *Predicted outcome*: Higher shareholder value	*Mechanism*: Incentives and ability to understand the long-term value of the firm's strategic choices (similar to large blockholders with longer time horizons) *Predicted outcome*: Higher shareholder value

efforts to observe and evaluate managerial choices. Here we consider how some remedies designed to curb moral hazard may prove ineffective as solutions to adverse selection, and may even exacerbate the problem. At the same time, other governance remedies expected to increase firm value by mitigating moral hazard may instead elevate firm value by remedying adverse selection. In Table 1, we summarize the predicted outcomes and mechanisms discussed that underlie common governance remedies through the lens of both moral hazard and adverse selection.

Adverse Selection and Incentive Intensity. Corporate governance research consistently highlights incentives that focus managers' efforts and decisions on increasing shareholder value as a remedy for moral hazard in capital markets (see Dalton et al. 2007, Goranova et al. 2007, Core et al. 2003, Certo et al. 2003, Hall and Liebman 1998, Jensen and Murphy 1990). The predominant belief is that linking managers' compensation to the value of the firm (i.e., stock price) spurs a focus on decisions that increase future financial performance, thereby elevating shareholder value (e.g., Hall and Liebman 1998, Dalton et al. 2007). Strongly influenced by this underlying logic, rewards for senior managers have become increasingly incentive intensive and linked to equity prices. Hall and Liebman (1998) conclude that the median elasticity of CEO compensation relative to the stock price performance increased twofold between 1982 and 1994. Holmstrom and Kaplan (2001) observe that the performance sensitivity of CEO compensation for public corporations is now of the same order of magnitude as the performance sensitivity for managers at private leveraged buyout firms in the late 1980s.[6]

But there is an important interdependence between moral hazard and adverse selection problems in this

[6] Agency theory proposes clear benefits of stock-based incentives and equity ownership for shareholder value (e.g., Jensen and Meckling 1976, Jensen and Murphy 1990). However, empirical research examining the influence of stock-based incentives and equity ownership on firm performance and behavior has found mixed results, and has also identified moderating variables such as CEO tenure, firm performance, or risk profile that shape its influence (e.g., Sanders 2001, Zhang et al. 2008; also see Dalton et al. 2007 for a review of this work.)

setting. Remedies to correct one may actually exacerbate the other. The argument for incentive intensive rewards that mitigate moral hazard ignores the collateral influence these incentives may have in shaping managers' response to the adverse selection problem. The argument that high powered incentives linked to equity prices maximize long run value for shareholders relies on an additional assumption that capital markets can accurately evaluate strategies consistently across all types of strategy and accurately price them (rendering stock prices accurate reflections of the value of strategies and an appropriate target for managers)—an assumption that is likely mistaken. Strategies vary considerably in their ease of evaluation. In particular, sustainably valuable strategies that are unique or complex are likely to be more difficult to evaluate, and those strategies are also more likely to be discounted. As a consequence, high powered incentives that link managers' rewards to current stock price may encourage managers to avoid such strategies to circumvent the discount. Thus, increasing incentive intensity, applied with the intent of focusing managers on improving stock price, may actually pressure managers to withhold highly valuable, but difficult to evaluate, strategies in favor of more easily and accurately valued choices.

Recent work provides support for the idea that managers are susceptible to short term pressures from stock market investors, potentially reducing investments that over a longer period would increase the value of the firm. This work suggests that incentives involving equity compensation for CEOs can be associated with apparent myopia in the form of decreases in investments or R&D with longer-term payoffs (e.g., Souder and Shaver 2010, Edmans 2009). For example, Souder and Shaver (2010) show that when CEOs possess exercisable stock options, they are likely to decrease long term investments to boost short term stock price. Work by Edmans et al. (2014) similarly shows that when CEOs have a large amount of equity vesting (indicating that they can quickly sell shares), they are likely to reduce investments in intangibles, as evidenced by decreases in R&D and advertising. This work not only highlights the pressures on managers to improve stock price, but also demonstrates how even longer-horizon incentives (such as stock options) can end up exacerbating shorter term pressures on managers. Thus, in the face of the "lemons" discount, high powered incentives that link rewards to current share price may paradoxically promote managerial myopia and encourage the selection of more easily evaluated and less valuable strategies. Although such strategic choices may avoid a stock price discount in the short term, they are likely to generate lower valuations in the long run than would more unique, complex, and therefore hard to value strategies if they were pursued. Thus, we propose that *the greater the incentives used in a firm that tie executive compensation to the firm's stock price, the greater the pressures on managers to choose strategies that are more easily evaluated* (*and avoid the stock price discount*), *and therefore are more common and less complex*.

Paradoxically, therefore, incentives intended to improve shareholder value by alleviating the moral hazard problem identified in agency theory literature (e.g., Dalton et al. 2007, Eisenhardt 1989), may actually encourage managers to adopt lower value strategies. But here the choice of less valuable strategies results not from shirking by managers, but from the market's inability to accurately evaluate strategic choices, particularly those that are more unique or complex. Managers are thus prompted to avoid information asymmetry and the lemons problem by migrating to strategies that are correctly valued, but also potentially more imitable and therefore less sustainably valuable.

Adverse Selection and Board Independence. In prior governance research, the composition of boards of directors shapes the prevalence of moral hazard. Specifically, "independent" board members mitigate the moral hazard problem by monitoring managers, ensuring that managers' actions and decisions about resource deployment are aligned with shareholder interests (e.g., Dalton et al. 2007, 1998, 1999; Baysinger and Hoskisson 1990; Aguilera 2005). Independent directors are also known as outside directors, those who "are not in the employ of the firm—other than in their capacity as directors—and have no substantive relationship with the firm" (Dalton et al. 2007, p. 7).

While outside or independent board members may be more credible as monitors of managerial actions and decisions, and thereby help mitigate moral hazard, this independence does little to mitigate the lemons problem and may even exacerbate it. If outsiders have less understanding of, or patience for, unique or complex strategies that the market discounts in the present, these external board members may do little to solve the information asymmetry or adverse selection problem. Instead, they may give greater voice to shareholders desiring strategy choices that solely maximize current market value. In their study of the influence of innovative knowledge assets on performance, He and Wang (2009) argue that outside directors are likely to be detrimental, as they are less likely than insiders to understand the value of idiosyncratic, firm-specific resource combinations. Moreover, while outside or independent board members may be particularly good at monitoring managerial actions and prompting alignment with shareholder interests, they may be less inclined

to support a sustained stock price discount as firms pursue unique, complex and therefore more difficult to value strategies, and more inclined to pressure the firm to adopt more easily evaluated strategies that alleviate the discount. Using similar logic, Bednar et al. (2013) found that outsider board members were more responsive than insiders to negative pressure from the media for strategic changes in their firms. Thus, we predict: *the greater the extent of outsiders on a firm's board of directors, the greater the pressure on managers to adopt or change to more common, less complex, and therefore more easily evaluated strategies.*

Adverse Selection and Shareholder Characteristics. Agency theory further proposes that large shareholders and institutional investors provide another remedy for the moral hazard or shirking problem (e.g., Dalton et al. 2007, Amihud and Lev 1999, Jensen and Meckling 1976, Hill and Snell 1988, Denis et al. 1999). In this view, while individual shareholders with limited shareholdings may lack the incentives or ability to closely monitor managers, investors holding larger concentrations of shares (i.e., blockholders) are believed to possess stronger incentives to undertake relatively costly monitoring and be more sophisticated in doing so (e.g., Edmans 2009, Rubin 2007). In much of the prior research in finance, these blockholders are assumed to have incentives not to simply follow the "Wall Street Rule" (e.g., Kahn and Winton 1998) by selling their shares when they disagree with firms' strategic choices, since selling off their large blockholdings will significantly affect the value of a sizable part of their own assets. Instead, these blockholders may directly intervene, pushing managers to change their decisions and thereby improve firm value creation. More importantly, for these large shareholders, the benefits to carefully monitoring strategies and exerting influence over strategy choices are somewhat large relative to the fixed costs of undertaking these activities. Thus, research suggests that institutional investors with large shareholdings in a firm's stock will more actively monitor management and thereby alleviate the moral hazard problem. For instance, researchers have studied how the presence of large blockholders discourages strategic choices commonly believed to be associated with agency problems, such as diversification, risk-taking, and poor performance (e.g., Wright et al. 1996, Hill and Snell 1988, Bushee 1998, Bethel and Liebeskind 1993, Denis et al. 1999).

We suggest, however, that institutional owners and holders of large blocks of shares do not merely remedy moral hazard, but may also help mitigate adverse selection. While large investors may monitor decisions and discourage value destroying empire building or the pursuit of pet projects (in the moral hazard case), they may also better evaluate strategy quality, thereby reducing information asymmetries and attenuating the adverse selection problem. Recent work in finance suggests ways that some blockholders can enhance firm value despite limitations on their capacity for direct intervention in a firm's operations. Edmans (2009) argues that blockholders may be motivated to collect costly information and carefully examine whether an earnings shortfall is due to poor management or sound investments that will have longer-term value. If these "informed" blockholders then patiently hold shares in the firms that they believe are pursuing valuable long term strategies, and sell only when they lose faith in the potential long term value of adopted strategies, then such loyalty should diminish any discount and discourage any strategic compromise that maximizes current share price at the expense of long term value creation. These dynamics would also help alleviate the information asymmetries that are the focus of our paper. Moreover, institutional investors often employ their own private "buy side" analysts. Like "sell-side" analysts, these analysts are expected to have more and better information than is available publicly. However, in contrast to sell-side analysts who are strongly motivated by incentives other than the accuracy of analysis (e.g., Hong and Kubik 2003, Michaely and Womack 1999, Lin and McNichols 1998), buy side analysts face strong incentives to correctly evaluate the quality of strategies within (or potentially within) their portfolios, including those with complex or unusual strategies. Thus, they are more likely to alleviate information asymmetries by digging in to assess whether any current discount reflects a low quality strategy due to a moral hazard problem, or whether it arises from firms adopting what are actually high quality strategies that are more difficult to evaluate. Again, the willingness of institutional investors to then invest in ways consistent with these better informed beliefs at once reduces the discount and supports the adoption of higher quality, difficult to evaluate strategies.

Institutional owners with longer investment horizons may also mitigate the adverse selection problem. For example, Bushee (1998) distinguishes between types of institutional investors and finds that investors with longer-term investment horizons (i.e., those not engaging in high "portfolio turnover" or "momentum trading") are less likely to exert short term pressures on managers to reduce R&D spending. Aghion et al. (2013) find a similar result, that institutional ownership is associated with greater innovation in firms. Similarly, Benner and Ranganathan (2013) find that firms held by mutual fund "growth" stock portfolios (suggesting investors with longer

time horizons and preferences for the characteristics of growth stocks) had more leeway to invest in a new technology than firms held by investors interested in "income" stocks, focused more on short term performance indicators. Thus, compared to investors engaging in shorter-term trading strategies, investors with longer-term horizons are less likely to be responsive (and less likely to push managers to be responsive) to the pressures of a shorter term discount. Thus, we propose that ownership concentration by informed institutional investors with longer term investment horizons will moderate the pressures imposed on firms by the lemons discount that accompanies unique, complex, and difficult to evaluate strategies. In this case, managers are more likely to persist with these more valuable, but difficult to evaluate strategies rather than compromise long term value in selecting more easily analyzed strategies. We therefore predict that *the greater the proportion of investors who are informed blockholders with longer investment horizons, the less pressure managers will face to adopt easily evaluated strategies*.

Going Private as a Solution to Adverse Selection. Managers are not static actors in regard to the ownership structure of the firms they control. Managers seeking to persist in their pursuit of potentially valuable, but difficult to evaluate, strategies may proactively seek large block investors with long term investment horizons and strong incentives to incur the high information costs imposed by unique, high value strategies. Of course, the extreme form of this financing strategy is to take the company fully private.

This view of private equity as a solution to adverse selection stands in sharp contrast to the more traditional view that private equity solves the moral hazard problem.[7] For instance, Hoskisson et al. (2013) argue in their review of the evolution of private equity that private equity transactions in the 1980s focused on leveraged buyouts or hostile takeovers, cost cutting, and rapid sell-off of the acquired firm's assets. A common story is that private equity helped unbundle misguided strategies, spurred by a rampant moral hazard problem within public firms that enabled managers to select value-destroying strategies (Jensen 1986). The shift to private equity then simply mitigated the moral hazard problem. This explanation for private equity, however, seems incomplete. Although prior literature has highlighted private equity's advantage in imposing discipline on managers and crafting high powered incentives, a strong case can be made for these firms solving instead the information problem that accompanies evaluating unique strategies and novel combinations of activities and assets (Kaul et al. 2015).[8]

Private equity investors may see the lemons problem that accompanies strategies as an opportunity for information arbitrage. While in some instances this takes the form of purchasing shares in complex, diversified businesses and then encouraging them to unwind, in other instances, the arbitrage opportunity might involve purchasing strategically novel entities that public equity markets undervalue. For example, Koch Industries purchased Georgia Pacific and created the largest privately owned company in the United States. The *Financial Times* (Roberts 2005) reported on Georgia Pacific's motivation for privatization, noting that Georgia Pacific's assets…

> …have underperformed the broader S&P500 index partly because it has an awkward mix of assets that are difficult to value together. Some of its consumer products, such as tissues, are in solid, high-margin niches that deserve a relatively high share-price multiple. Other activities, such as selling building products, are in volatile sectors where investors are beginning to worry about the effects of a downturn in the US housing market…. The combination means an otherwise strong company has been trading at a significant discount to the sum of its parts at a time when potential buyers have lots of cash and borrowing is cheap. (p. 29)

The argument suggests a belief that Georgia Pacific was pursuing a high quality strategy that was simply discounted in public equity markets due to the difficulty of evaluating it. By taking the company

[7] Another alternative to going private observed with increasing frequency is the issuing of dual class shares, where one class of shares has significantly higher voting rights (often 10:1) relative to common shares. These preferred shares are granted primarily to management, giving them greater control over the direction of the firm. In recent years, firms like Google, Amazon, Facebook, LinkedIn, Dropbox, Alibaba, Berkshire Hathaway, and Nike have all adopted this dual class structure, granting management these high voting rights shares.

[8] Although extensive empirical literature clearly documents the near disappearance of conglomerates from public equity markets over the past two decades (e.g., Markides 1992, 1995; Davis 2005; Davis and Stout 1992) fueled in part by private equity, conglomerates not only still exist, they have arguably enjoyed a resurgence in the form of these private equity firms. Most private equity firms (and also hedge funds) are commonly bundles of highly unrelated businesses, entities that are difficult to analyze in the composite. For example, Berkshire Hathaway, often viewed as a private equity firm, has actually long been a diversified conglomerate that currently owns 45 businesses, including GEICO, Benjamin Moore, Helzberg Diamonds, See's Candies, and the Burlington Northern-Santa Fe Railroad, among others. Thus, it is an unrelated diversifier, owning business across multiple industries, including railway, insurance, jewelry retailing, furniture, paint, and candy. Many private equity firms or hedge funds have become large investors (e.g., Edmans 2009, Bushee 1998), with incentives to incur the information costs required for accurate analysis and investment.

private, Georgia Pacific obtains a patient investor with longer-term investment horizons, allowing the value of longer-term strategies to be revealed. Rather than correcting an errant strategy, the value created often involves revealing the value in an inherently good one.[9]

Managers who seek equity from public markets therefore face pressures either to choose strategies that are less costly to analyze, or to migrate to private equity where investors possess incentives to accurately assess and realize the longer-term value of novel or unique strategic choices. Correspondingly, research in entrepreneurship suggests that privately funded firms with costly to analyze strategies may be less likely than other firms to go public. Alternatively, if they go public, they are more likely to have large shareholders with substantial control (Sanders and Boivie 2004). One solution for resolving information asymmetry in these settings is disclosure, i.e., providing proprietary information to potential investors. But disclosure is also costly, given the potential to reveal valuable information to competitors. Research has shown that pre-IPO, owners of entrepreneurial firms facing both high information asymmetries and high potential disclosure costs tend to retain a high level of ownership (Guo et al. 2004). The potential high costs of disclosure further influence the IPO decision and can prevent firms from going public (e.g., Dambra et al. 2015). Well-intentioned managers pursuing unique or complex strategies are more likely than managers pursuing less novel strategies to seek out private equity investors who have the ability and motivation to accurately assess strategies. In addition, as previously noted, private equity investors may see the discount in valuable but hard to evaluate strategies, and pursue opportunities to invest in these undervalued firms. Thus, the highest value, but most costly to evaluate strategies are likely to migrate away from public to private equity markets. We therefore predict that *firms that persist in pursuing unique, novel, or complex strategies despite incurring a stock price discount are more likely to migrate to private funding*.

Further, this suggests that strategies that are high quality but difficult to evaluate will represent a larger portion of strategies observed in private equity markets than strategies observed in public equity markets (e.g., Harris et al. 2014, Asker et al. 2013).

Discussion

In this paper, we explore the sources and implications of adverse selection, i.e., the "lemons problem" in public equity markets. Equity markets, where investors make decisions to buy and sell the claims on the future value of firms' strategic choices, function as "markets for strategy," as distinct from markets where firms' products and services are bought and sold. We examine how valuable strategies that are difficult to imitate, but also more difficult to evaluate, are likely discounted in capital markets and therefore compromised or withheld entirely from the market. We examine the factors that give rise to this "lemons discount" and "lemons problem," as well as important implications for managers choosing strategies.[10] In doing so, we examine an alternative to standard agency theory explanations for many strategy and organizational choices observed among firms with stocks traded in public equity markets. Prior work in agency theory and corporate governance has focused on moral hazard or managerial shirking, i.e., managers pursuing their own private interests at the expense of long-term shareholder value creation, as the predominant reason for strategy choices that reduce shareholder value. We focus instead on well-intentioned managers making strategic choices that will create long-term value, but who face challenges educating market participants about the value of these strategies. As both research and managerial education in strategy underscore, strategies that create sustainable long-term value are unique and inimitable. However, these precise characteristics (unfamiliarity and complexity, or causal ambiguity that make strategies difficult to understand and imitate) also render high quality strategies more costly to evaluate by market participants, increasing information asymmetry and spurring a discount in current stock price. Although analysts—as important market intermediaries—would be expected to provide assessments of strategy quality that overcome these limitations, a growing body of recent empirical research shows that analysts also face difficulty valuing strategies that are novel, unique, or complex, and has documented the resulting discount in stock price. Thus, difficult to analyze strategies are discounted in public equity markets both due to information asymmetries between managers and shareholders, and further, as their increased costs to analyze deter analyst coverage.

We further propose that firms will face pressures to abandon or simply avoid such strategies and adopt strategies that are easier to evaluate and thereby alleviate the discount. Such strategies are likely to be more common and less complex. But strategic choices that are more easily evaluated and more easily imitated are also less likely to be sustainably valuable in

[9] Similar logic has long prevailed in explanations for venture capital as a form of private equity financing. Here entrepreneurs with unique ideas solicit funding from investors with strong incentives to carefully evaluate and understand their novel proposals.

[10] We do not intend to suggest that public equity markets operate as a "lemons market" in the extreme, where all "products" offered are low quality. Instead, our focus is on the implications of an adverse selection or lemons problem that managers must consider when choosing to pursue costly to evaluate strategies.

the long term. We describe how strategy choices may respond to an adverse selection or lemons problem in the market for strategies, as the market rewards the selection of more common, less complex, and easier to evaluate strategies over more valuable unique strategies that are more difficult to evaluate.

We further assess remedies for the moral hazard problem widely studied in past research and highlight their different—and perhaps unintended—effects when applied in the context of an adverse selection or lemons problem. Under these conditions, paradoxically, the high powered incentives prescribed in agency theory research to alleviate the moral hazard problem instead may exacerbate the adverse selection problem, encouraging the selection of common and more easily evaluated strategies of lower value, over more unique strategies of higher value. Similarly, outside or independent board members, expected to be superior to inside board members in providing managerial monitoring to alleviate the moral hazard or managerial shirking problem, may again exacerbate the adverse selection problem, granting greater voice to board members with potentially less understanding of the firm's unique strategic choices. While blockholders and longer-term investors are viewed as mitigating the moral hazard problem due to their greater incentives to monitor managers, we highlight their greater incentives to uncover value in unique strategies and therefore to mitigate this adverse selection problem. Thus, firms whose shares are held by informed blockholders with longer investment horizons may be less likely to suffer a lemons discount and more likely to pursue high value, hard to observe strategies. This suggests further that managers who wish to pursue potentially valuable, but difficult to evaluate strategies are likely to seek private funding.

Our work suggests promising directions for future research. First, strategy research would benefit from a shift away from the common implicit assumption that moral hazard is the only—or even the most important—agency problem and that selecting low value strategies necessarily represents managerial shirking. Research in strategy should begin to explore the nature and significance of information asymmetries between owners/investors and managers that generate pressures on managers to abandon novel, unique, or complex strategies in favor of more common and more easily imitated ones. It is also important for strategy researchers to clearly differentiate between strategies' long term value and current stock price, recognizing the potential for systematic bias in the capacity of capital markets to assess strategies of varying types. For example, research that assesses the value of strategic decisions using event studies or other means of using stock price as a measure of the value of strategic choices relies on assumptions that the market is capable of accurately valuing all strategies. These approaches fail to consider that some strategies are more difficult to accurately value than others, and more importantly, that the characteristics of strategies that make them difficult to value are also the characteristics of sustainably valuable strategies longer term. Recognizing that some strategic choices may incur stock price discounts not because they are inherently low value or low quality strategies, but because of the information asymmetry problem they spur is important for advancing research on the central strategy question of how firms create and sustain long term value.

Second, there is an opportunity to extend empirical work in agency theory and governance to carefully consider the adverse selection problem and its remedies. In this paper we have suggested how the much studied remedies for moral hazard might also mitigate, or conversely exacerbate, the adverse selection problem. These are opportunities for further empirical work. Prior empirical work on the influence of the important governance mechanisms intended to resolve the moral hazard problem has shown mixed results (Dalton et al. 2007), suggesting empirical opportunities to further our understanding of how governance influences the creation of value for shareholders. For example, a more careful, thorough consideration of the adverse selection problem and the likely detrimental effects of both incentives and outside board members on the value of a firm's strategic choices might help resolve the inconsistent findings in prior empirical work. Moreover, although our propositions on the influence of blockholders suggest that the positive influence on firm value will be similar in the adverse selection context and the moral hazard context, the underlying mechanisms differ, suggesting promise for further theorizing and empirical tests on the characteristics of investors that mitigate moral hazard versus adverse selection.

Third, we have focused on uniqueness, novelty, and complexity in strategic choices, characteristics that past research suggests will affect the potential value of strategies and their inimitability, as well as the difficulty or cost to evaluate them. But our ideas can be extended to implications for other characteristics of strategy that have been associated in past research with both long term value creation and also with difficulty in evaluation, including tacitness, intangibility, and so on. There is an opportunity to specify and more carefully test the characteristics of firms' strategies that are likely to receive a discount because they are costly to analyze (i.e., lemons discount) in public equity markets, and the corresponding implications as firms respond to pressures to alleviate the discount.

Finally, we have not included the potential for signaling in our theory, often considered a remedy for information asymmetry and the adverse selection problem (e.g., Crawford and Sobel 1982, Spence 1973, Certo 2003, Deutsch and Ross 2003, Connelly et al. 2011, Riley 2001, Hoehn-Weiss and Karim 2014, Zhang and Wiersema 2009). This is also an opportunity for future research. Much like the other potential interventions we do consider in the paper (such as analysts as information intermediaries, the three main governance mechanisms, and private equity), we expect that even if firms attempt to signal the quality of their strategies, such signaling would not eliminate the adverse selection problem entirely. He and Wang (2009) similarly note that signaling is difficult in contexts such as ours where value creation relies on intangible assets: "...the same tacitness, path dependency, and firm specificity that make innovative knowledge a promising source of superior performance can also challenge firm owners in interpreting these typical signals" (p. 922). But there may be opportunities for particular types of signals to work in our setting as well.

The Possible Benefits of a Lemons Discount

To this point our assumption has been that a lemons discount represents a negative outcome in the market which managers are anxious to overcome. However, under some common circumstances, a lemons discount in public equity markets may actually have strategic value. If a strategy requires incurring high information costs to evaluate and analyze, the resulting discount makes the strategy appear less valuable and discourages imitation, which would render a strategy more common and thus less valuable. Thus, if managers persist in the face of pressures to abandon such strategies, they potentially increase the long term value of the strategy.

To illustrate, consider a capital market in which investors are able to instantly and correctly assess the value of unique and newly adopted strategies. In such a market, a manager who adopts a high quality strategy instantly invites imitation, which, absent significant imitation barriers, renders quite common what had previously been unique. For instance, if the market understood in the early 1980s the true quality of the Wal-Mart strategy and had assigned it a "correct value," this dramatically elevated value would certainly have encouraged quick and aggressive imitation, and at a time when such imitation had the possibility of succeeding and immediately eroding Wal-Mart's potential advantage. Thus, for strategic reasons, firms may wish to hide the true value of their adopted strategies, so as to afford time to build barriers to imitation (e.g., Chen and Hambrick 1995, Yoffie and Kwak 2001). Hence, in some settings, rather than seeking to overcome the lemons discount, some firms may seek to sustain it. Indeed, one source of the information asymmetry between managers and analysts that gives rise to the lemons discount is managers' reluctance to fully explain the sources of value from a difficult to observe strategy, to protect the information from potential competitors. Still, the capacity of a firm to downplay the long term value of their current strategy in hopes of promoting a lemons discount depends on the patience of investors as well as the comparative performance of the firm.

We have focused on the pressure that may lead managers to opt for more common strategic choices to facilitate their evaluation, or alternatively, to migrate to private equity markets. Managers may also seek to increase the scope of information collection about their strategies without altering strategy. Managers may engage in aggressive campaigns to communicate their strategy. The CEO of a publicly traded company today devotes a very large portion of his or her time to "marketing" the firm's strategy to analysts and investors. Benner and Ranganathan (2015) show that conference calls with analysts and shareholders provide a forum for explaining and justifying firm strategies, and also that these efforts can effectively change the "schema" by which analysts evaluate a firm. Thus, meetings and conference calls may serve as the way that managerial theories of value are communicated to stock market participants. Effective marketing may partly mitigate any lemons discount by which the firm would otherwise suffer. Finally, managers may choose to directly pay for analysis, an option that has become more possible recently with the introduction of services where firms can pay directly for analyst coverage. The hope is that this service will allow the under-analyzed public firms to pay for what will be viewed as "independent" research analysis. More than 35% of all publicly traded firms have no security analyst covering their firm and nearly 50% have less than two analysts (Litov et al. 2012). Thus, firms with high information cost strategies might be more likely to engage in tactics to overcome the downside of high information costs.

Conclusion

An agency theory perspective focused on moral hazard has been at the forefront of research in management and strategy on how firms can and should create long-term value for shareholders. This perspective emphasizes managerial shirking as the explanation for low value strategies observed in public equity markets and stresses the importance of governance mechanisms such as incentives that align managers' interests with the creation of long term value, or monitoring managers to prevent shirking. In contrast, we

describe a likely situation where the inherent quality of the strategy itself is not the sole driver of stock price. Rather, the difficulty that stock market participants and important intermediaries face in understanding and accurately valuing such strategies also shapes the market's assessment of value. We propose that these factors give rise to a lemons problem as managers choosing strategies for their firms are pressured to adopt lower quality but easily evaluated strategies.

We contend that management scholars have too quickly jumped on the governance bandwagon that traditionally pervaded the finance literature, assuming that the path to value creation involves ensuring that managers respond to market signals (i.e., current stock price) in selecting strategies. However, if those signals are systematically biased in the way we suggest, then some efforts to correct what is a perceived behavior problem with managers encourages precisely the low value outcomes governance seeks to avoid. If instead managers are assumed to possess vision and foresight about sources of long term value for their firms that capital market actors are unable to efficiently assess (or which managers cannot strategically disclose), then governance prescriptions for value creation become very different. Rather than solving a behavior problem among managers, observed governance becomes focused on solving a behavior problem within capital markets. As management scholars, we suggest that the adverse selection or "lemons" problem in markets for strategy deserves at least equal treatment in the literature. We are not alone. Recently, leading scholars in finance have also begun to challenge the traditional agency view that pervades finance (e.g., Matsusaka 2001, Rajan 2012), including a recent call from the president of the American Finance Association for scholars to move beyond this narrow agency perspective focused on moral hazard. As Rajan (2012) notes: "the firm in finance has invariably been [treated as] a single person entity . . . the primary focus of analysis has been on the agency problem between the manager and investors . . . ." He further suggests that "a very rewarding area of research in the years to come will be to *open up the black box of the corporation* so as to link its inner functioning to its financing needs" (pp. 1175–1176, emphasis ours). We would similarly encourage strategy scholars, who have the theoretical and empirical tools that actually equip them to better understand the inner workings of firms and who therefore have already opened the black box, to similarly move beyond the narrow agency theory perspective with its emphasis on moral hazard. We suspect "75 years of conceptualization and empirical research" (Dalton et al. 2007, p. 1) has too often focused on the wrong agency problem.

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