Private Equity Arrangements as Real Options

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Abstract

The premise of this discussion is that private equity players intend to create real options that maximize the value derived from potential movement in the worth of the underlying business platform. This intended maximization occurs when the current value of the exercise instrument equals the current value of the underlying asset (so the option is at the money). It is also clear that when the time horizons of different arrangements tend to be consistent (as tends to happen in private equity arrangements) the attraction will be for higher volatility. The actions often criticized in the media are readily understandable in this context. For example, private equity is criticized for "borrowing heavily to buy companies, breaking them up, and selling off the pieces at huge profits." Even before exiting, the private equity players separate the acquisitions into business units and asset pools. This changes an option on a portfolio into a portfolio of options, and we know from option pricing theory that result is worth more than the starting point. Private equity has also been criticized for putting their acquisitions into debt in order to pay themselves dividends. Upon acquisition of a new business platform (perhaps composed of multiple business units) the private equity firm has paid a substantial premium for an option on a portfolio. After separating it into multiple options on different business units, the private equity firm might understandable want to sell assets that don't need to be owned (but could be leased instead), thereby reducing their equity investment and bringing the options closer to the money. Then additional borrowing (and withdrawal of dividends) again bring the options closer to the money. In order to illustrate the nuances of private equity as real options, we include discussion of three recent cases, each illustrating one of the common paths followed in private equity.

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Private Equity Arrangements as Real Options

1. Introduction

The premise of this discussion is that private equity players intend to create real options that maximize the value derived from potential movement in the worth of the underlying business unit (movement potential increases with more time to expiration or more volatility). Within option pricing theory it is clear that this intended maximization occurs when the current value of the exercise instrument equals the current value of the underlying asset (so the option is at the money).[1] This condition maximizes the difference between the value of the option and the lower bound—let us call this difference the "moneyness profit." It is also clear that when the time horizons of different arrangements tend to be consistent (as tends to happen in private equity arrangements) the attraction will be for higher volatility. The real options that private equity arrangements create tend to be straightforward:

- Each of the acquired business units is the underlying asset for a real option.
- The exercise price is the value of the debt or other obligations that must be repaid upon exit from the business unit.
- Time to expiration is established by the agreements among the partners and the other investors in the private equity package.
- Exit from a business unit usually does not occur before the debt associated with the initial acquisition has been retired (this preserves the relationships needed in order to continue doing future deals). Thus the exercise price for the exit may actually be zero, when the private equity firm is not obligated in connection with the debts accrued after the acquisition by the portfolio company.

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[1] To clarify further, in this condition a put or a call would have the same value, and a forward contract would have zero value.

It has been popular, though, to criticize private equity players for the very things that maximize the moneyness profit of their arrangements. For example, when *Business Week* discussed the Burger King IPO the author included the following statement:

> "The coming Burger King IPO offers a window onto the clubby world of cash-rich private-equity players and how they make their billions. During the 1980s, firms such as Kohlberg Kravis Roberts & Co. and Blackstone Group LP borrowed heavily to buy companies, broke them up, and sold off the pieces at huge profits. … Nowadays private-equity firms often spend hundreds of millions of their own money on an acquisition. Just as often, though, they load up the companies with debt and use the money to pay themselves special dividends and other fees that allow them to profit even if the company itself struggles. Then the backers take the company public, often pocketing the lion's share of the offering."[2]

The behavior described in the first accusation is fully understandable in light of the options involved.[3] Even before exiting, the private equity players separate the acquisitions into business units and asset pools (see Exhibit 1 for a picture). This changes an option on a portfolio into a portfolio of options, and we know from option pricing

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[2] Quoted from *Business Week*, April 10, 2006, News Analysis and Commentary Section, "Burger King: Where's the Beef?"

[3] In order to better appreciate the criticisms, it might help to consider a brief history of Burger King, adapted from the *BKC 2006 Annual Report*, p. 3. Burger King Corporation was founded in 1954 when James McLamore and David Edgerton opened the first Burger King restaurant in Miami, Florida. The Whopper sandwich was introduced in 1957. In 1967, Mr. McLamore and Mr. Edgerton sold BKC to The Pillsbury Company. BKC became a subsidiary of Grand Metropolitan PLC in 1989 when it acquired Pillsbury. Grand Metropolitan merged with Guinness to form Diageo PLC in 1997. These conglomerates were focused more on their core operations than on BKC. On December 13, 2002, Diageo sold BKC to private equity funds controlled by Texas Pacific Group, Bain Capital Partners and the Goldman Sachs Funds, and for the first time since 1967 BKC became an independent company again.

theory that result is worth more than the starting point.[4] Then of course they exercise the options when appropriate and sell off pieces.

Likewise it is readily understandable that private equity would "load up the companies with debt and use the money to pay themselves special dividends and other fees that allow them to profit even if the company itself struggles." Upon acquisition of a new business platform (perhaps composed of multiple business units) the private equity firm has paid a substantial premium for an option on a portfolio. After separating it into multiple options on different business units, the private equity firm might understandable want to sell assets that don't need to be owned (but could be leased instead), thereby reducing their equity investment and bringing the options closer to the money. Then additional borrowing (and payment of dividends to the private equity firm) further reduces the equity investment and might raise the exercise price, again bring the options closer to the money.

In order to illustrate the nuances of private equity arrangements as real options, we include discussions of three recent cases, each illustrating one of the common paths followed in private equity. We use the case of QualServ Corp. in order to illustrate two steps in the private equity path. First (in 1997) QualServ was formed by the rollup of five independent family-owned food service equipment and supply (FE&S) businesses, guided by Mercury Capital. Then in 2004 Riverside Company bought the restructured platform and has continued to develop it toward a potential IPO candidate.

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[4] See Robert C. Merton, "Theory of Rational Option Pricing," *Bell Journal of Economics and Management Science*, Vol. 4, No. 1 (Spring 1973), pp. 141-183.

We use the case of Hawker Beechcraft Inc. to illustrate a private equity acquisition of a healthy specialized division from a major corporation. Then we use the case of Chrysler Corporation to illustrate a private equity acquisition of a troubled (but potentially recoverable) business from its former merger partner.

Finally, we discuss possibilities for empirical verification of the moneyness profit, that the authors hope to develop in future work.

2. The Case of QualServ Corporation

Burger King is one of several examples of private equity being attracted to the restaurant industry. It makes sense, then, that private equity firms might also be attracted by foodservice equipment and supply (FE&S) businesses. Let's look at the case of QualServ Corporation.

Food Service Holdings Inc, whose subsidiaries included Food Service Supplies Inc, Columbia, SC; Smith St. John and Remco, Kansas City, Missouri; Air Systems Inc, Ft. Smith, Arkansas; and Tennessee Restaurant Equipment Sales, Nashville, was originally consolidated in 1998, under Mercury Capital, a New York City equities firm, to form the single corporate entity that was renamed QualServ Corporation in April 2002.

Then on July 9, 2004 the Riverside Company, the leading private equity firm specializing in investments at the smaller end of the middle market, acquired QualServ, by then a leading full-service provider of custom and standard kitchen equipment, furnishings and smallwares (pots, pans, etc.) to the foodservice industry. QualServ was already established as one of the five largest players in the foodservice supply industry, providing one-stop, turnkey products and services to major restaurant chains with three primary product lines: kitchen equipment, customer fabrication and smallwares.

QualServ is a major supplier to nearly half of the top 20 foodservice chains in the industry, including Applebee's, Dunkin Donuts and Burger King. This purchase, with a transaction value in excess of $100 million, was Riverside's eighth of 2004.

So six years after its initial acquisition by means of the rollup of several independent companies, Mercury Capital exited with a substantial increase not just in the cash flow generated by its acquisition, but also in the multiple it commanded in the exit sale. Mercury Capital accomplished this by restructuring the business from five small independent pieces into an integrated whole with heightened economies of scale and reduced duplication of overhead. Via the rollup, Mercury created a real option on an underlying asset with enhanced potential for increasing value, and then exercised it profitably.

The acquisition of QualServ was Riverside's eighth for 2004 and the 86th since its inception in 1988. It was the fourth acquisition from the $750 million Riverside Capital Appreciation Fund, 2003 (RCAF '03). Lenders on the transaction were CIT, MassMutual and the Bank of Ireland. In addition to the equity provided by Riverside, QualServ management made a significant investment in the buyout.

The subsequent agenda for Riverside would be to repay the debt incurred for the acquisition, use its resources to further strengthen and build QualServ, withdraw dividends and fees to reduce its equity investment, and guide it toward a successful exit via an IPO. These steps can be seen readily in terms of bringing the option closer to the money and enhancing the potential for the underlying asset to increase.

Part of the volatility that attracted Riverside arises from an assessment of the potential for the whole restaurant industry. In its press release announcing the

acquisition, Riverside included a quote from Robert Fitzsimmons, Managing Partner in Riverside's New York office: "As we all get busier and eat out more often, restaurant sales are expected to continue to grow. According to the National Restaurant Association, food dollars spent outside the home are expected to increase from 49% today to 53% by 2010. So we expect QualServ's business to be equally robust in keeping with this trend."[5]

2.1. The Riverside Company

The Riverside Company, with offices in New York, Cleveland, Dallas and San Francisco, is the leading private equity firm investing in premier companies at the smaller end of the middle market. The firm has nearly $1.3 billion of capital under management. In addition to four pre-1995 acquisitions, Riverside has brought to market The Riverside Capital Appreciation Funds of 1995, 1998, 2000 and 2003, attracting investors from pension funds, endowments, funds-of-funds, insurance companies and banks. Since its inception in 1988, Riverside has invested in 86 acquisitions—40 platform companies and 46 add-ons—across a variety of industries through its four funds and other investment vehicles. The firm is known as one of the industry's most active acquirers, having bought eight companies so far in 2004 and 13 in 2003. Riverside's current portfolio numbers 28 companies.

In describing what they do, the two co-chief executive officers of Riverside Company offered the following objectives: "In order to succeed in today's small LBO

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[5] Riverside Company Press Release July 9, 2004, "Riverside Serves Up Another Platform to Firm's Portfolio."

market, we focus on making companies quantitatively bigger AND qualitatively better in a number of ways:

- Increase the caliber of management and processes used.
- Add value via access to operating expertise.
- Purchase add-ons and integrate them quickly and effectively.
- Establish a board of directors for oversight and input, recruiting industry veterans and retired CEOs.
- Innovate in areas like product development, customer and product pruning, pricing and geographical growth.
- Source, sell and operate in Asia."

They continued, writing: "While many of these concepts were considered fairly innovative just a few years ago, today they are viewed as routine when increasing the value of portfolio companies. At Riverside, we embrace this process of improvement as we focus on opportunities to evolve as better owners."[6]

To an aficionado of real options, this sounds like a course of action aimed at enhancing the values of the real options they possess.

Further evidence that Riverside actively seeks acquisitions with high potential for increased value (high volatility) can be perceived in the following quotation from the same source: "Over Riverside's 19-year history, we've bought 159 companies under 87 platforms, of which we've exited 30. Only three times have we lost capital, and only one other time have we not sold the business for a multiple in excess of what we paid. In each of the remaining 26 exits, we sold the platforms for a multiple in excess of what we

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[6] Stewart A. Kohl and Bela Szigethy, "Small Remains Beautiful to the Riverside Company," *Thomson Buyouts*, Vol. 20, No. 9 (April 30, 2007).

paid, on overage realizing an arbitrage of about three turns. … Riverside is so bullish on the small market that we've doubled down on it. In the summer of 2005, we started buying micro-sized companies with EBITDA of $3 million and less. These are some of the fastest-growing companies in our entire portfolio, and we expect terrific things of these small but mighty heroes."

The Riverside Company, founded in 1988, has expanded to employ 130 people in offices in 15 cities worldwide: Munich, Prague, Budapest, Warsaw, Amsterdam, Madrid, Brussels, Tokyo, New York, Cleveland, Dallas, San Francisco, Atlanta, Chicago, and Los Angeles.

2.2. QualServ Corp[7]

QualServ Corporation has revenues of $54 million annually, with 350 employees. President and CEO is Laurance Nowak, who has over twenty years management experience, received his undergraduate degree from Yale and the MBA from Harvard Business School. He has international experience in the United Kingdom and France. He replaced the former CEO (Charles Rowe) after Riverside Company acquired QualServ (evidence of Riverside's active ownership and desire to strengthen the company in preparation for the eventual exit).

QualServ is a leading full-service provider of foodservice equipment, fabrication and supplies, providing one-stop, turnkey products and services to major restaurant chains, their franchisees, and major retail chains. QualServ provides the ability to completely outsource the build-out, remodel and re-supply of foodservice establishments,

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[7] This description of QualServ Corp is sourced from the www.qualserv.com and www.zoominfo.com.

by providing an integrated service package consisting of design, sourcing and consolidation, customized fabrication, staging, and installation.

As one of the five largest companies in its industry, and one of the few to provide full in-house fabrication capabilities along with a national value-added distribution/installation network, QualServ has established a position as a primary supplier to nearly half of the top twenty foodservice chains in the industry, including Applebee's, Dunkin Donuts, and Burger King.

QualServ, headquartered in Kansas City, was formed through the acquisition of five separate foodservice equipment and supply companies in 1997 and 1998. The businesses that joined together to form QualServ are among the largest, oldest and most successful foodservice equipment and supply businesses in the nation. Through consolidating these separate businesses into a single, integrated operation, QualServ is now one of the five largest full-service FE&S providers in the industry.

QualServ has differentiated itself as a one-stop provider of the widest range of products and services, from design through installation, in the industry. Its products and services include:

(i) Computer aided design (CAD) generated drawings and store layouts;

(ii) Fabricated stainless steel food preparation and service equipment;

(iii) Fabricated wood and laminate countertops, bars and cabinets;

(iv) Purchased/consolidated kitchen equipment (ovens, refrigerators, fryers, etc.) and smallwares (pots, pans, ceramic and glassware, etc.),

(v) Complete furniture packages and interior design, and

(vi) Staging, delivery and installation of the entire turnkey package.

QualServ is able to serve as a one-stop shop for the largest chains in the industry, distinguishing the Company from our competitors who typically lack the depth and breadth of products and services offered by QualServ.

By consolidating into a single, powerful entity, QualServ can take advantage of the benefits of being a leading national provider of a full breadth of products and services, while, at the same time, retaining the individual strengths and customer service-driven approach of each of our locations. Management believes this enhances the company's market position in servicing larger national accounts as well as smaller regional customers.

3. The Case of Hawker Beechcraft

Hawker Beechcraft Inc. provides an example of a private equity acquisition of a high-potential division from a large corporation that is not willing or able to focus resources on realizing the division's potential. On March 26, 2007 Raytheon Corporation completed the sale of Raytheon Aircraft for $3.3 billion to the newly formed Hawker Beechcraft Inc. Hawker Beechcraft was formed by GS Capital Partners (an affiliate of Goldman Sachs) and Onex Partners. The sale was first announced on December 21, 2006.

Raytheon had begun seeking a buyer for its aircraft subsidiary several years before. It had sought to sell the division for an asking price of $4 billion, shopping it unsuccessfully to General Dynamics, Dassault Aviation, Textron (which owns Cessna

Aircraft) and Bombardier (which owns jet-maker Lear).[8] Washington-based investment fund Carlyle Group also declined to bid at that time.

Then Raytheon got busy grooming its aircraft subsidiary. On August 11, 2001 Raytheon announced the first flight of the Hawker Horizon at its Wichita, Kansas production facility.[9] The Horizon's fuselage is made with advanced composite technology pioneered by Beech Aircraft Company for its Starship model. Several years after Beech was acquired by Raytheon, this composite fuselage technology was applied on Raytheon Aircraft's Premier I business jet (in the light jet category). The six-passenger Premier I is the first composite-fuselage business jet. This state-of-the-art construction method, combined with a swept metal wing, provides faster cruise speed, superior handling and a cabin size that is seven inches taller and eight inches wider than competitive entry-level business jets.

The Hawker Horizon introduced this technology for larger jets. This airplane is one-third larger than the company's mid-size Hawker 800XP, offers an outstanding combination of range, speed and cabin size. A range of 3,100 nm at Mach .82 is guaranteed for the Horizon, promising the ability to cross the U.S. non-stop against almost any wind. A maximum range of 3,400 nm provides trans-Atlantic capability and additional performance flexibility.

The secret of the Horizon's advanced performance is the composite fuselage. The Premier I's fuselage is built in two sections, yet the much larger Horizon fuselage is built

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[8]Reported by Anne Marie Squeo, "Raytheon Searches for a Buyer for Aircraft Unit," *Wall Street Journal*, October 18, 2000, p. A4.
[9] Raytheon News Release, "Raytheon Aircraft's New Hawker Horizon Soars Over the Kansas Skies on Its First Flight," Wichita, Kansas, August 11, 2001.

in only three sections. Because there are no ribs or stringers as in aluminum construction, the plane features a full 72-inch standup cabin that is 77.5 inches wide. A flat floor runs the entire length of the aircraft, leading to a large (105-cubic-foot) aft baggage area that is accessible on the ground through an exterior door or during flight through the cabin.

Soon after this, in October 2001, Raytheon announced German certification of the Premier I light jet, opening new markets in Europe.[10] Then, in a serendipitous development *Flying* magazine (one of the world's most prestigious aviation publications) selected the Premier I for its "Editors' Choice Award."[11] The award cited cabin room and high cruising speed, both attributable to the unique composite fuselage that allows exterior diameter to be only a little larger than interior diameter because there is no space consumed by a framework of ribs and stringers.

The composite technologies provide numerous real options for scaling to larger applications, or bringing out new products. As Raytheon continued to pursue these options, their aircraft division became increasingly attractive to private equity firms seeking an acquisition with substantial growth potential.

Even though the acquisition guided by GS Capital Partners and Onex Partners is less than a year old at the time of this writing, Hawker Beechcraft Inc. (HBC) has continued taking bold steps toward expanding the application of their advanced composite technology. Also, they have added new sales management in Asia, the Middle East, and Africa. On February 20, 2008, HBC announced the appointment of Russell W.

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[10] Raytheon News Release, "Germany Certifies Raytheon I Light Business Jet," Wichita, Kansas, October 9, 2001.
[11] Raytheon News Release, "Raytheon Premier I Selected for 'Editors' Choice Award' in *Flying* Magazine," Wichita, Kansas, January 15, 2002.

Meyer III as director of new product development (this indicates continued efforts to enhance the value of growth options). Meyer comes to HBC from Cessna Aircraft Company, where he spent the last thirteen years in a number of leadership roles with increasing responsibility. In his most recent position as program manager, he led the development and certification of the company's new Citation Mustang. He also worked in aircraft sales and as Eastern division sales manager, where he managed the single engine piston aircraft sales and Cessna Pilot Center programs in the eastern United States and Canada. Prior to Cessna, Meyer spent two years as a project pilot for Honeywell, Inc. in Phoenix, Ariz., where he was an avionics expert for customer support and training. Meyer also served in the United States military as a flight lead F-16 pilot in the U.S. Air Force, Air National Guard.[12]

3.1 Hawker Aircraft, Beech Aircraft, and Raytheon

Beech Aircraft Corporation was founded in 1932 by aviation pioneer Walter H. Beech and his wife Olive Ann Beech. Early contributions were the first enclosed cabin executive transport, the 200-mile-per-hour biplane Model 17, known as the Staggerwing. Then in 1937 came the Model 18 Twin Beech, which saw service in all of the allied forces and all of the theaters of operation during World War II. The innovations continued after the war with the iconic Model 35 Beech Bonanza (a six-passenger single-engine workhorse). Later developments were the turboprop King Air and the piston twin Queen Air.

[12] Raytheon News Release, "Hawker Beechcraft Corporation Appoints Cessna Alum Russ Meyer III," Wichita, Kansas, February 20, 2008.

In 1979 Mrs. Beech (then a widow) went to the management with a challenge. She wanted to retire and needed to sell the company so she could gain some portfolio diversification. Still, she wanted to leave the company with a solid future as a lasting memorial to her husband. Management responded by announcing a commitment to develop the Starship, a revolutionary design with all-composite construction and canard configuration (lifting wings at the rear, turbine-powered propellers pushing at the rear rather than pulling from the front) and a variable-sweep front-mounted stabilizer. Plans called for an eventual investment of $200 million to be used for advanced computer design capabilities and computer-controlled fabrication of composite parts. The facilities for working with composites would include the world's largest industrial autoclave (used for curing the composites after the fibers have been laid on a mold and impregnated with resin).

For the fuselage, the plans included a computer-controlled arm that would wind a single continuous filament of carbon fiber around an inflatable mold. The wound fiber would then be impregnated with resin and baked in the autoclave.

Raytheon Corporation was the contractor for the state-of-the-art all glass cockpit, using cathode ray tube displays instead of analog gauges. Raytheon was so impressed with initial public responses to the cockpit/cabin mockup and display drawings of the new airplane that Raytheon offered to acquire Beech in a merger for stock. On February 8, 1980 the acquisition was completed, resulting in the stock price for Beech more than doubling during the time from November until February.

The Starship Project provides a case study ripe for use in teaching students about the potential value of options to scale a product up to larger versions, down to smaller

versions, or to generate new products. The technology also offered options to improve existing products or to make parts for other manufacturers (Raytheon would later subcontract to make the control surfaces and winglets for the Boeing C-17 military transport).

Raytheon acquired the mid-size Hawker jet line from British Aerospace in August 1993. Raytheon later applied the fuselage technology developed by Beech to the Premier I light jet (first announced in 1995 and certified in 2001) and the Hawker Horizon super mid-size jet (first announced in 1996 with maiden flight in 2001). Here also there are classic examples of real options to scale the product up, or to develop whole new products founded upon the technology.

On May 30, 2001 the Chairman and CEO of Raytheon Aircraft, Hansel Tookes, stepped up to President of Raytheon International, Inc. He was replaced by James E Schuster, in another indication of the parent's commitment to grooming Raytheon Aircraft for eventual sale.

4. The Case of Chrysler Corporation

The merger of Chrysler and Daimler needs no elaboration. Finally worn down by the high legacy costs that burden Chrysler and facing its own difficulties maintaining product differentiation for its Mercedes line, Daimler divested Chrysler in a sale to Cerberus Capital Management LP (announced May 2007). The attraction for Cerberus was the powerful upside potential if private equity ownership could succeed in wresting concessions from the United Autoworkers Union, or reduce the retiree healthcare and pension burdens via bankruptcy. The greatest source of uncertainty (and hence the value

added to the option by volatility) was the question of whether the legacy costs could successfully be contained.[13]

In November 2007 Chrysler announced moves to substantially reduce the number of dealers in its network, and reign in the distribution and marketing costs. Under one proposal Chrysler dealers would sell all of the company's passenger cars under the Chrysler nameplate. Dodge dealers would exclusively sell pickup and commercial trucks. Jeep dealers would sell Jeeps and SUVs.[14] Such a move would be designed to help lift the value of the underlying asset in the private equity firms' option.

The Chrysler case offers a worthwhile opportunity the challenge students to discuss the potential benefits of private equity ownership in a turnaround situation. Given the nature of the real options they hold, and the incentives to enhance the option values by trimming costs, stimulating growth, and bringing the options closer to the money, the private equity owners have powerful encouragement to cure what ails the company. In Chrysler's case, the obvious ills are ballooning legacy costs, entrenched dealers, and sluggish new product development. These all become clear targets under private equity ownership.

5. Concluding Remarks

Starting with the premise that private equity players intend to create real options that maximize the value derived from potential movement in the worth of the underlying business unit, we have considered the obvious steps revealed by option pricing theory.

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[13] *Wall Street Journal*, Chrysler Deal Heralds New Direction for Detroit," May 15, 2007, p. A1.
[14] *Wall Street Journal*, Chrysler Considers Slashing Number of Car Dealers," November 17, 2007, p. A1.

First, of course, private equity investors would seek acquisitions that offer high upside potential, with downside controllable via financial engineering. Then after the acquisition they would seek to move the value of the underlying close to the current value of the exercise instrument. This condition maximizes the difference between the value of the option and the lower bound—we have called this difference the "moneyness profit." Using this linkage to option analysis, we have argued that certain often-criticized actions associated with private equity deals are readily understandable in terms of the motivation to maximize the values of the real options the private equity owners have in hand.

Even before exiting, the private equity players separate the acquisitions into business units and asset pools (see Exhibit 1 for a picture). This changes an option on a portfolio into a portfolio of options, and we know from option pricing theory that result is worth more than the starting point. Then of course they exercise the options when appropriate and sell off pieces.

Likewise it is readily understandable that private equity would "load up the companies with debt and use the money to pay themselves special dividends and other fees that allow them to profit even if the company itself struggles." Upon acquisition of a new business platform (perhaps composed of multiple business units) the private equity firm has paid a substantial premium for an option on a portfolio. After separating it into multiple options on different business units, the private equity firm might understandable want to sell assets that don't need to be owned (but could be leased instead), thereby reducing their equity investment and bringing the options closer to the money. Then additional borrowing (and payment of dividends to the private equity firm) further

reduces the equity investment and might raise the exercise price, again bring the options closer to the money.

We have considered three recent cases that help illustrate the nuances of private equity arrangements as real options. The case of QualServ Corp illustrates two steps in the process of transforming small family businesses in large presences in their industry. It begins with the rollup of five small family businesses orchestrated by Mercury Capital in 1998. Then after completing the consolidation, Mercury sold to Riverside Company in 2004. Riverside has continued with the rationalization and brought in new management talent, resulting in a company that is now the largest full-service entity in its industry.

The case of Hawker Beechcraft Inc. provides an illustration of how a high-potential division can be carved out of a large corporation and brought closer to full potential. The incentives to improve the value of the real options created in the private equity structure directly encourage the actions necessary to bring out the full potential value.

Last, the case of Chrysler Corporation shows how a problem-plagued entity can be carved out of a larger corporation and started along the path toward improved health.

With some of the private equity firms having gone public themselves, the possibility becomes available to test for the presence and extent of any moneyness profit.[15] If it is there, we could also test for the market response to specific actions by private equity management. We intend to pursue extensions along this line in the future.

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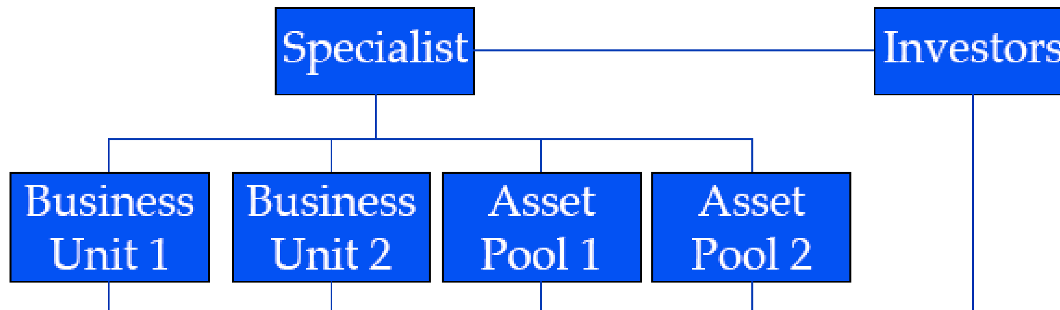
[15] Blackstone Group trades on the NYSE with symbol BX. KKR Private Equity Investors trades on the American Stock Exchange with symbol KPE. Kohlberg Capital Corp trades on the NASDAQ with symbol KCAP. Other private equity firms presently are considering going public.

Exhibit 1: Structure of a Buyout Association



The separately identifiable business units and asset pools are broken out and made available to investors as separate holdings. The buyout specialist remains in control, and is also available as an investment.