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“Value creation drivers of largest private equity funds: comparative analysis of Blackstone leveraged buyouts in the real estate industry”

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Forward-looking statements

AUM: Assets Under Management

BPP: Blackstone Properties Partners

BREP: Blackstone Real Estate Partners

CCC: Cash Conversion Cycle

DPI: Distributions to Paid-In-Capital

EBITDA: Earnings Before Interest, Taxes, Depreciation and Amortization

EOP: Equity Office Properties

GP: General Partners

IPO: Initial Public Offering

IRR: Internal Rate of Return

LBO: Leveraged Buyout

LP: Limited Partners

NPV: Net Present Value

PE: Private Equity

PME: Public Market Equivalent

PV: Present Value

REIT: Real Estate Investment Trust

RVPI: Residual Value to Paid-In-Capital

TVPI: Total Value to Paid-In-Capital

WACC: Weighted Average Cost of Capital

Table of Contents

List of figures **6**

Introduction **9**

CHAPTER 1: Private equity industry overview **11**

1.1 THE PRIVATE EQUITY DEAL 11

1.1.1 Characteristics 13

1.1.2 Target Companies 13

1.1.3 Participants 15

1.2 ORGANIZATIONAL STRUCTURE OF A PRIVATE EQUITY FIRM 17

1.2.1 Structure characteristics 18

1.2.2 Compensation 20

1.2.3 Secondary market 23

1.3 LBO ANALYSIS 25

1.3.1 LBO Returns 26

1.3.2 LBO Valuation 29

CHAPTER 2: Leveraged buyout value drivers **33**

2.1 MARKET EVOLUTION (1980 – 2019) 33

2.2 VALUE GENERATION 39

2.2.1 The Agency Theory 39

2.2.2 Value generation models 42

2.2.3 Costs review 45

2.3 DIRECT DRIVERS 47

2.3.1 Financial Drivers 47

2.3.2 Operational Drivers 50

2.3.3 Strategic Drivers 55

2.4 INDIRECT DRIVERS 58

2.4.1 Governance Drivers 58

2.4.2 Cultural Drivers 61

2.4.3 Human Drivers 63

2.5 VALUE CAPTURE 64

2.5.1 Timing Drivers 64

2.5.2 Multiple arbitrage 65

2.5.3 Screening drivers 67
2.5.4 Negotiation drivers 69
CHAPTER 3: Comparative analysis of the largest private equity firms 73
3.1 SAMPLE PRESENTATION 73
3.1.1 The Blackstone Group 75
3.1.2 KKR & Co. 78
3.1.3 The Carlyle Group 80
3.1.4 Apollo Global Management 83
3.2 FINANCIAL METRICS 87
CHAPTER 4: Private equity investing in real estate properties: the Blackstone case 101
4.1 PRIVATE EQUITY ACTIVITIES IN THE REAL ESTATE INDUSTRY 101
4.2 BLACKSTONE REAL ESTATE INVESTMENT CRITERIA 108
Conclusion 126
References 129
List of Web Sites 136

List of figures

Figure 1: Overview of the size of the private equity market from 2000 to 2017 12

Figure 2: Private equity deals by industries, sample of 13884 deals (1991-2007) 15

Figure 3: Organization of the private equity market..19

Figure 4: Management fees and carried interest (1984-2010) 22

Figure 5: Structure of a limited partnership interest sale 23

Figure 6: Global private equity secondary market volume..24

Figure 7: Illustration of the typical J curve of a private equity fund 27

Figure 8: Cash flow performance of 910 buyout funds (1984 - 2010) 29

Figure 9: Typical capital structure of an LBO 31

Figure 10: IRR generating process through deleveraging in an LBO 31

Figure 11: Evolution of the number of junk bonds held by US companies in billions of US dollars (1970 – 1985)..35

Figure 12: Stock returns related to announcements of changes in capital structure 41

Figure 13: Evolution of value creation in private equity deals 44

Figure 14: Buyout funds PME compared with the average amount of debt issued by buyout funds; the sample includes 1157 LBOs (1980 – 2009)....................................49

Figure 15: Employment levels in 26 US firms acquired by private equity firms (2002 – 2007) compared to the US labor market data 52

Figure 16: Capital expenditure in private equity-owned companies compared to other public and private companies...53

Figure 17: Cash Conversion Cycle compared with Gross Operating Income of 1006 non-financial firms (1992-1996)..54

Figure 18: Source of value on a sample of 32 European LBOs with an average exit IRR of 48% 57

Figure 19: Management equity ownership compared to Gross IRRs of 85 European leveraged buyouts 58

Figure 20: Mean and Median of Tobin`s Q for a sample of 452 firms (1984 – 1991) with different board sizes 60

Figure 21: Degrees of activism compared with deal performances of 38 LBOs......62

Figure 22: Optimal market timing for leveraged buyouts 64

Figure 23: Evolution of the gap between exit and entry multiples in a sample of 832 leveraged buyout (1990 – 2005) 66

Figure 24: Total private equity investments by industries, compared to the average net IRR of 800 US buyout funds (1980 – 2003)......67

Figure 25: Average Gross IRR by different deal sources, sample of 140 leveraged buyouts (1980 – 2003) 69

Figure 26: IRR by entry modes, sample of 350 deals (1973-2003)......70

Figure 27: Average Return by industry for 800 buyout funds (1980 – 2003) 73

Figure 28: Average Return of 2600 PE funds by geographic focus (2003 – 2013)......74

Figure 29: Blackstone investments by sector and geographic region (1989 – 2019) ..77

Figure 30: KKR investments by sector and geographic region (1978 – 2019) 79

Figure 31: Carlyle investments by sector and geographic region (1989 – 2019) 82

Figure 32: Apollo investments by sector and geographic region (1989 – 2019)......85

Figure 33: Blackstone, KKR, Carlyle, and Apollo Total AUM (2005-2018). 87

Figure 34: Blackstone, KKR, Carlyle, and Apollo PE Funds AUM (2005-2018) 88

Figure 35: Blackstone, KKR , Carlyle , and Apollo Real Estate Funds Assets Under Management (2005-2018)......89

Figure 36: Blackstone, KKR, Carlyle , and Apollo net income (2004-2018) 90

Figure 37: Blackstone, KKR, Carlyle and Apollo net income margin (2004-2018) ...91

Figure 38: Blackstone, KKR, Carlyle, and Apollo total management fees, in dollars and as a percentage of private equity and real estate AUM (2010-2018) 94

Figure 39: Blackstone, KKR, Carlyle, and Apollo total investment income, in dollars and as a percentage of private equity and real estate AUM (2010-2018)......95

Figure 40: ICE BofAML US High Yield Master II Index value (01.2013-07.2019) ..97

Figure 41: Blackstone, KKR, Carlyle, and Apollo Market Returns (2012-2018) 98

Figure 42: Blackstone, KKR, Carlyle, and Apollo Implied Volatility (2012-2018) ...99

Figure 43: Blackstone, KKR, Carlyle, and Apollo Monthly Risk-Adjusted Return (2012-2018)....100

Figure 44: Private equity deals in the real estate industry and aggregate value in billions of US dollars (2012 – 2018)....101

Figure 45: Percentage of investments in each property type (2018) 103

Figure 46: Active real estate fund managers by primary strategy (2018)....105

Figure 47: Average measure of risk and return by asset classes from 2005 to 2015....106

Figure 48: Performance of real estate funds by geographic focus and primary strategy from 2005 to 2015....107

Figure 49: 13 most relevant real estate funds owned by Blackstone Real Estate Advisor. Funds size and commitments are in millions of US dollars....109

Figure 50: Net annual IRR of Blackstone most relevant real estate funds 111

Figure 51: Net return weighted for the fund size of most relevant Blackstone Real Estate funds and Private Equity funds 112

Figure 52: Blackstone total management fees for its private equity and real estate business lines, in dollars and as a percentage of relative AUM (2005-2018)....113

Figure 53: Blackstone investment income for its private equity and real estate business lines, in dollars and as a percentage of relative AUM (2005-2018) 114

Figure 54: Total number of sample transactions by target industry 116

Figure 55: Evolution of the total deals value of the sample transactions 117

Figure 56: Sample average transaction size....117

Figure 57: Top 10 largest transactions completed by Blackstone. 118

Figure 58: Blackstone selloff of EOP assets....120

Figure 59: Evolution of the average office price per square foot in North America (2001 – 2019) 122

Figure 60: Revenues and EBITDA growth rates of Hilton and its main peer: Marriot, Starwood, and Choice 124

Figure 61: Evolution of Hilton share price with main events....125

Introduction

The business of private equity has become a fundamental component of our contemporary economy. Every year private equity firms raise thousands of funds, acquire thousands of companies, and invest trillions of US dollars. Since the 1980s, several investment firms have developed the art of leveraged buyouts: borrowing money to buy a company and eventually sell it at a profit a few years later. However, private equity activities have always been a controversial theme for the financial world. Indeed, private equity funds had for long operated in the shadows. Before many leading buyout companies went public in the late 2000s, funds' managers used to reveal just a few details of their deals.

This thesis aims to clarify what drives the success of the world's largest private equity funds. In this sense, it is essential to make a comparison between the leading private equity firms regarding metrics, operating models, and investment analyses. Moreover, in order to give a broad view of the private equity industry, it is necessary to deepen what are the most targeted and ideal industries where they invest. Therefore, investments in the real estate industries deserve particular attention for the high number of relevant leveraged buyouts in this sector. Consequently, it becomes of paramount importance to analyze the transactions of Blackstone, the undiscussed market leader of the private equity industry.

Chapter 1 gives an overview of the private equity industry. In the beginning, there is a complete description of a leveraged buyout, concerning the deal structure, the participants, and a particular focus on the characteristics of target companies. Afterward, it follows a section about the organization of private equity firms and their secondary market. The end of the chapter consists of a picture on different methods of calculating the return of a leveraged buyout, and the main valuation models.

Chapter 2 compares the different value drivers in a private equity deal. Since value drivers have changed over time, it was necessary to give an idea of how they evolved

in different periods. After a fist historical review, the chapter presents the main value-generating models and an analysis of the costs that private equity firms have to bear. The taxonomy of value drivers divides these factors into three groups: direct drivers, indirect drivers, and value capture.

Chapter 3 contains a comparison of four market leaders of the private equity industry: The Blackstone Group. KKR & Co., The Carlyle Group, and Apollo Global Management. These companies have been chosen for their investment style, competitive advantages, size of transactions, historical background, and profitability. For each firm, there is a first description of the company and its investments, divided by industry and region. Moreover, the four companies are compared with different metrics, in particular, assets under management, net income, revenue items, and market returns.

Chapter 4 consists of an overview of private equity deals in the real estate industry. This section describes the different strategies of acquiring commercial and residential real estate properties with a particular focus on returns and volatility. Afterward, it is carried out the analysis of Blackstone investments in the real estate industry. In the end, two of the largest deals in the real estate industry are reviewed: the leveraged buyouts of Equity Office Properties, and Hilton Worldwide Holdings.

CHAPTER 1

Private equity industry overview

1.1 THE PRIVATE EQUITY DEAL

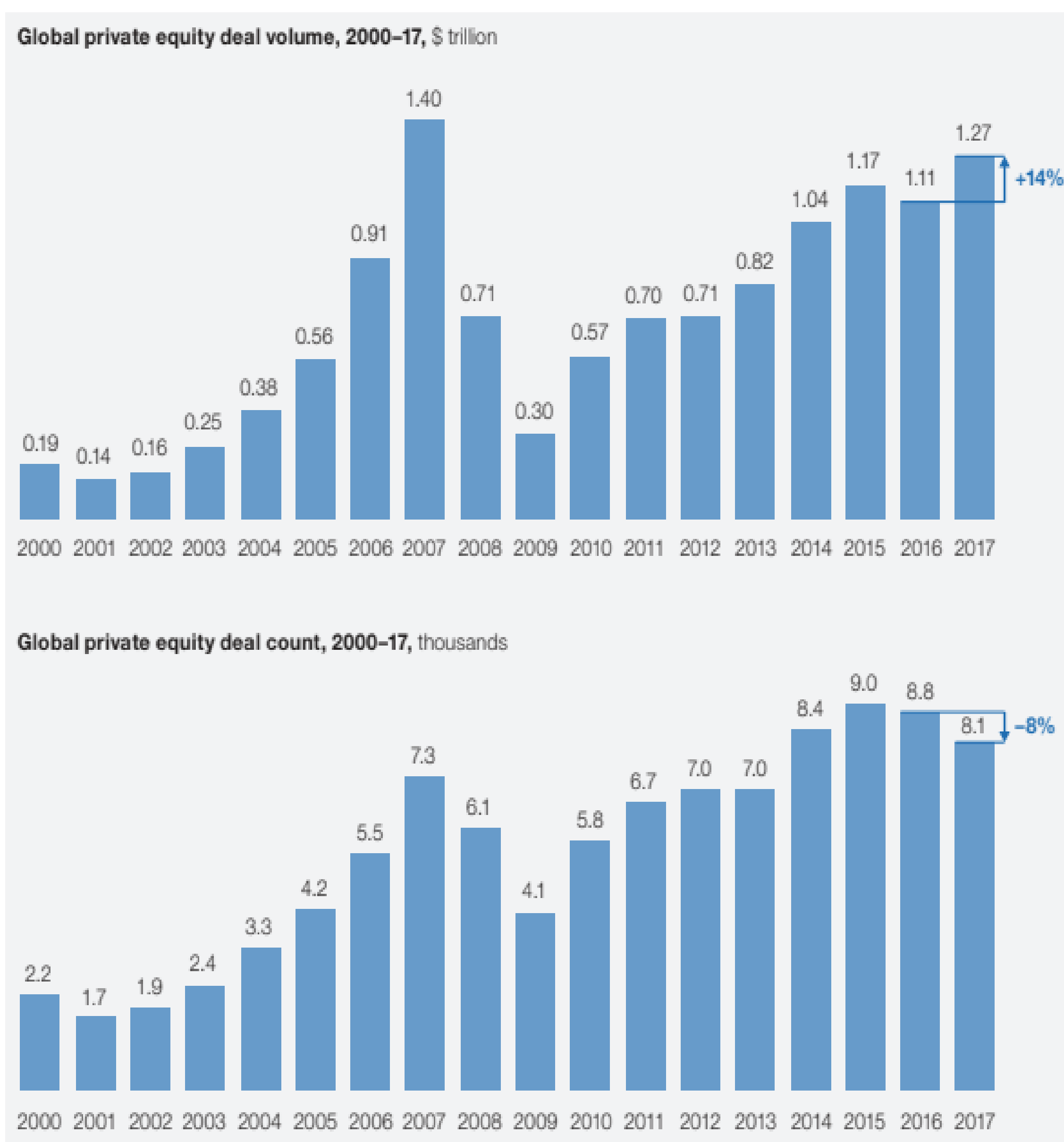
The typical private equity deal is a leveraged buyout.

In a leveraged buyout, a specialized investment firm ("private equity firm") acquires a target company. This transaction is carried out with a small portion of equity and a more significant portion of outside debt financing. The primary purpose of a leveraged buyout is to allow companies to make significant acquisitions without having to commit much capital. The roles of the private equity firm in a leveraged buyout are to provide the equity component, to secure debt financing, to complete the purchase, and to negotiate the purchase price of the shares. The investment firm uses the assets of the target company as collateral for the loans. Private equity firms are considered "financial buyers" because they do not extract synergies from an acquisition, as opposed to strategic buyers. The acquirer expects to generate a return on the acquisition, which will outweigh the interest paid on the debt in order to generate a high return on equity, only risking a small amount of capital. Once the target company is acquired, the private equity firm takes majority control of the firm.

The return is more often generated by operational improvements that depend on the characteristics of the target company. These enhancements may involve changing the management team of the business, selling off assets to unlock value or purchasing additional assets to make the core business more efficient. In general, the operations of the private equity firm on the target company aim to increase the profitability of the business or to expand the valuation multiples. Once the target company has gained enough value, the private equity firm will either sell off parts or all the owned shares and exit at a profit.

The debt used for the deal is put on the balance sheet of the target company and not on the balance sheet of the private equity firm. Once the cash flows of the acquired company are stable, the private equity firm will pay off the debt, and increase the return generated by the sale of the business. The exit strategy usually consists of taking the acquired company public through an IPO or, more rarely, by selling the shares to a financial or strategic buyer.

Figure 1: Overview of the size of the private equity market from 2000 to 2017



Source: The rise and rise of private markets, Mckinsey Global Private Markets Review 2018

1.1.1 Characteristics

In a leveraged buyout, the purchaser is represented by the private equity investment fund that has secured debt and equity funding from institutional investors. The equity investment portion of acquisitions was historically related to the level of interest rates and the average quality of the debt offered by the markets, with an average of 30-40% equity and 60-70% debt. Higher is the debt level used to fund the transaction higher is the expected return of the buyer. The debt can belong to different classes, relatively to different levels of risk. The most general distinction is between senior debt and junior debt. Banks provide senior debt which is usually secured by the assets of the target company. Junior, or subordinated debt, is unsecured and raised in the high yield capital markets.

The most common measure of profitability of a leveraged buyout is the internal rate of return. This measure depends on the amount of leverage, the ability of the target's cash flows to pay the debt, the eventual exit strategy and dividend payouts[1].

Private equity investing is typically carried out through a limited partnership structure in which the private equity firm managers serve as General Partners. General Partners provide a little portion of equity and have the highest capital exposure since they retain proceeds only after investors receive their distributions and interests. Investors serve as limited partners, and they are mainly institutional investors and wealthy individuals who provide the bulk of capital.

1.1.2 Target Companies

The first step for a successful LBO is to screen for the right target.
The most important characteristic to look for in a target is the potential to generate stable and predictable cash flows. Cash flows are used to pay down the debt, and so their quality will determine the amount of leverage. While screening for a target, the private equity professionals look at the present level of cash flows of potential

[1] Historically the IRR has been above 20%.

companies. General partners make forecasts about operational initiatives designed to increase cash flows post-acquisition. With forecasts on cash flows, it is possible to establish the amount of equity to invest, and the corresponding potential return based on the equity investment.

Moreover, capital expenditure required to operate the business is crucial as it consumes cash that could otherwise cover interest expenses.

Another key characteristic of a target company is a good management team, suitable for the task of creating and running a more efficient business. In many cases, new management must be brought in for several reasons. The existing management may not be competitive or not able to work in a highly leveraged environment with little margin error. The new business may also require professional figures with different skills and competences. Usually, private equity firms have their own highly specialized operating executives. These professionals join the Board of Directors of the target company in order to help the existing management to create value and grow the company.

A clean balance sheet with a low amount of debt is also an ideal characteristic of a target company. For the private equity fund, it is crucial to consider the peculiarities that will make a good impression with lenders (banks). In this sense, essential characteristics are an efficient debt structure and a high amount of hard assets. The physical assets of the target company like machinery, inventory, receivables, and real estate serve as collateral for the bank debt. However, also intangible assets like brand names, goodwill, and human capital are essential considerations in an LBO. Intangible assets do not provide collateral value for loans but may have unrealized growth potentials.

Moreover, if the shares of a public company are trading at a lower multiple to free cash flow as compared to a new and high growth industry, that company is an appetible target.

While an entity`s growth prospects are relevant, they are secondary to stability. A mature market with predictable demand, steady revenue, and no eminent game-changing is the ideal buyout environment. In such a case, the cash flows of the companies are likely to be more predictable.

Figure 2: Private equity deals by industries, sample of 13884 deals (1991-2007)

Industry	Observations	PE industries	Deals	Deal volume
Agriculture, hunting, forestry and fishing	432	84	54	6.18
Basic metals and fabricated metal products	431	234	782	77.20
Chemical, rubber, plastics and fuel products	431	223	757	116.17
Community, social and personal services	430	216	1,162	323.37
Construction	430	173	328	28.44
Electrical and optical equipment	431	229	879	146.87
Electricity, gas and water supply	431	84	109	100.90
Financial intermediation	426	232	586	156.39
Food products, beverages and tobacco	431	221	572	114.45
Hotels and restaurants	426	171	454	135.58
Machinery and equipment	431	255	1,316	135.92
Manufacturing and recycling	431	166	394	32.70
Mining and quarrying	429	98	157	32.87
Other non-metallic mineral products	431	131	163	19.35
Pulp, paper, paper products, printing, publishing	431	216	556	115.74
Real estate, renting and business activities	426	284	2,737	372.99
Textiles, textile products, leather	431	213	447	32.02
Transport equipment	431	113	111	15.73
Transport, storage and communications	430	231	595	257.11
Wholesale and retail trade – repairs	426	279	1,725	358.60
Total	8,596	3,853	13,884	2,578.58

Source: Private Equity and Industry Performance - Bernstein, Lerner, Sørensen And Strömberg. (2010)

1.1.3 Participants

The leading roles of the private equity firm are to select the LBO target, negotiate the acquisition price, and secure debt financing. Once the target company is acquired, the private equity firm becomes the owner and controlling member of the Board of Directors. At this stage, general partners either set up new management or instruct the existing management about their guidelines. While owning the target company, the private firm oversees the activity and decision making of senior management. General partners make all major strategic and financial decisions in order to generate a target IRR and decides when and how to sell the company.

A second important class of participants is investment banks[2]. Investment banks act as agents in an LBO by providing search, valuation, and negotiating services. They identify firms that are potential candidates for private equity investment and compile information about the firm. Moreover, advisors distribute prospects to potential investors, negotiate terms with them on behalf of their client firms. They might also use their knowledge of current market conditions to obtain better terms. In some cases, investment banks help general partners to raise funds by providing extensive evaluation services for potential investors. They also assist the private equity firm in the eventual sale of the company.

The third class of participants are investors. Public and corporate pension funds are the largest investor groups, followed by endowments and foundation, bank holding companies, wealthy families, and individuals. Insurance companies, investment banks, and foreign investors are the remaining significant groups. Most institutional investors invest in private equity for strictly financial reasons. Precisely, they expect the risk-adjusted return on private equity to be higher than the risk-adjusted return on their other investments, and they want to gain the benefits of diversification. For each major group, the most significant institutions, tend to invest both directly and through limited partnerships.
Usually, investors begin investing in private equity through limited partnerships, and after gaining experience in structuring, monitoring, and exit deals, they start investing alongside partnerships. Corporate pension funds and endowments can be significant co-investors. On the other hand, public pension funds, with limited access to deal flow and a little experience, are the least likely to become general partners. When general partners identify an investment opportunity, they draw capital from the fund in a single upfront, while limited partners provide capital over time. Capital is locked up in the private equity fund by contracts for 10-12 years.

[2] George, Liang, and Prowse, 1995.

Management represents the fourth class. In order to eliminate agency issues, management invests with the private equity fund in the new equity of the acquired company and usually receive stock options.
In the end, there are also many different professionals involved in a private equity transaction, like lawyers, accountants, and tax experts.

1.2 ORGANIZATIONAL STRUCTURE OF A PRIVATE EQUITY FIRM

The organization of a typical private equity firm is a partnership or limited liability corporation. General partners are the senior manager of the partnership management firm, while institutional investors are limited partners. The general partners are responsible for managing the partnership's investments and contributing a tiny portion of the partnership's capital[3]. The limited partners provide the balance of the investment funds. The lifetime of the partnership is contractually fixed, generally ten years, with provision to extend the partnership to a maximum of four more years. General partners invest capital in the first three to five years, then manage it and gradually operate a full liquidation. In these phases, general partners make distributions to limited partners in the form of cash or securities. The partnership managers typically raise a new partnership fund at about the time they complete the investment phase for an existing partnership. Thus, the managers are raising new partnership funds approximately every three to five years and at any one time may be managing several funds, each in a different phase of its life. The fund is expected to be fully invested within five years and is designed to realize an exit within three to seven years of the original investment. Each partnership is legally separate, however, and is managed independently of the others.

Most private equity funds are closed-end funds, meaning that limited partners cannot withdraw their funds until general partners close the fund. Limited Partners have very little influence on how general partners invest if the fund adheres to the necessary

[3] Usually 1%.

covenants of a Limited Partner Agreement[4]. Some of these covenants are restrictions on the amount of capital that general partners can invest in a single company, or in which sectors they can invest.

1.2.1 Structure characteristics

The structure of a private equity firm is designed to safeguard the interest of the limited partners. There are many possible ways in which general partners can further their interests at the expense of limited partners. As instances, they might take undue investment risks or spend too little effort in monitoring and advising portfolio firms[5]. In this sense, the closed-end fund structure provides a sort of protection for limited partners' interests. General partners must regularly raise new funds in order to stay in business. The raising of a partnership is very costly and time-consuming and depends on their general reputation and experience. These features allow only private equity firms with the best reputation among investors to survive.

The first key indicator of the managerial ability of general partners is a favorable track-record, which is an essential attractor of capitals for the private equity fund. To minimize their fund-raising expenses, partnership managers generally turn first to those who invested in their previous partnerships. If they draw capital, the investment community becomes aware of the favorable valuations that the fund is receiving. After drawing capital from their fidelity investors, partnership managers will try to allow all potential investors to consider their participation in the fund. Consequently, they often raise capital in several stages. General partners are not indifferent to the type of investors with whom they want to work. It is much easier for them to face investors who have already experienced in private equity investing and know how to deal with general partners.

The Limited Partnership Agreement includes covenants that offer protection to investors. Typically, these covenants will detain general partners from engaging in certain behaviors or provide a limited oversight on the activities of general partners.

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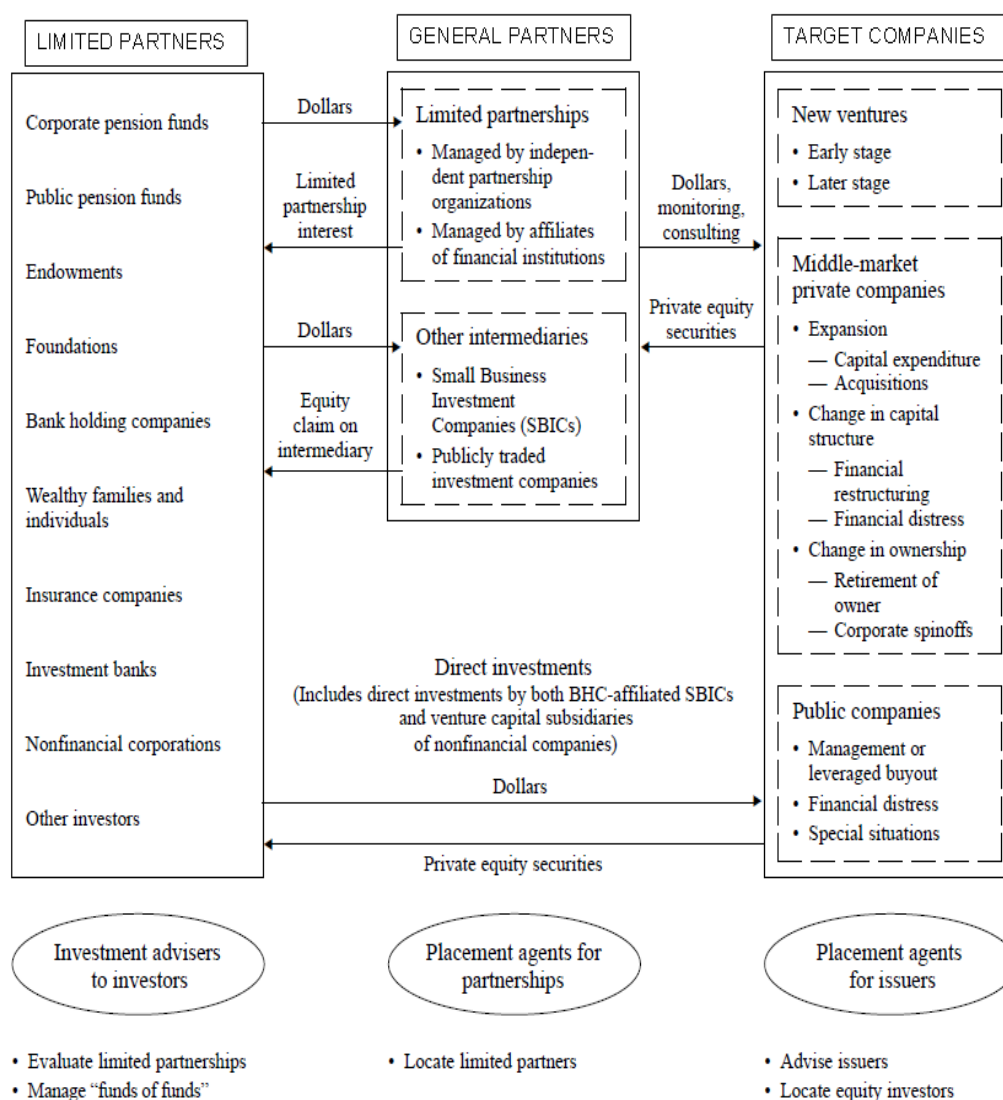
[4] George W. Fenn, Nellie Liang, and Stephen Prowse, 1995.

[5] George, Liang, and Prowse, 1995.

Another instrument of protection that most partnerships have is a board of advisors that resolves issues involving deal fees and conflicts of interest by approving exemptions from partnership covenants. Special committees are also created to help determine the value of the partnership's investments.

Eventually, sometimes investors can vote for removing a general partner or for ending the partnership before the termination date[6].

Figure 3: Organization of the private equity market



Source: The Economics of the Private Equity Market. George, Liang, and Prowse. (1995)

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[6] Sahlman, 1990.

1.2.2 Compensation

The primary cash source of a private equity firm is the annual management fee received from limited partners. The management fee percentage is established in the partnership agreement and is generally equal to 1 – 3% of committed capital. The contract may stipulate that the percentage or basis changes at some point during the life of the fund[7]. If the percentage changes, it is usually higher in the first years of the life of the fund, as it reflects the different degrees of involvement of general partners. In the first years, general partners are busier to screen and monitor portfolio companies, and relatively less involved when portfolio companies are taken public or sold. This fee structure encourages general partners to receive their money back quickly and start raising a new partnership. The percentage generally changes at most once as well, but multiple changes do sometimes occur. If the basis changes, it usually changes to net invested capital, defined as invested capital less equity cost of all realized investments. The change to net invested capital has the effect that fees are earned only on active, and not realized, investments. More rarely, the basis changes to invested capital, which is the total capital invested in portfolio companies to date.

Private equity firms also receive a portion of the profits generated by the fund, which is the carried interest. Carried interest is usually 20% of the fund net return: a strong incentive for general partners to create value for the fund. The percentage devoted to general partners is calculated based on the return of the partnership's entire portfolio in order to harmonize the interests of the partnership managers with those of the limited partners. It is fundamental for limited partners that general partners are concerned about total returns. Otherwise, general partners might put all their efforts in maximizing the return on their most successful investments and neglecting the lower performing investments. This feature is guaranteed by the so-called "drawback provisions" of the partnership agreement. Drawback provisions allow limited partners to recover their capital and management fees before the general partners receive carried interest. In general, drawback provisions require the general partners to give back their earlier

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[7] Robinson and Sensoy, 2011.

distributions. Usually, the largest funds are able to gain the highest carried interest[8]. Therefore, limited partners allocate more capital to managers with more exceptional abilities to generate returns.

General partners may also receive fees from portfolio companies. These fees include transaction fees, advisory, monitoring, and director fees. Portfolio companies could also bear expenses related to proposed, but not consummated investments, tax, accounting, litigation, general, legal, and meeting expenses.

Finally, the partnership agreement can include different types of compensations. General partners may offer limited partners priority returns of 5-10% before they begin to receive a share of the partnership's profits.

In some cases, they receive a fixed percentage above the priority return. In other cases, they receive all the percentage in excess to a limit of 20% of the partnership's cumulative profits. In all cases, the priority return provision ensures that the managers of the fund receive payments only if they outperform traditional investments. Moreover, many limited partners insert clauses forcing general partners to distribute cash instead of stocks or to discount the value of the stock distributions. The main reason is that they want to avoid liquidity risk and market risk. Indeed, these risks could be very threatening for limited partners if the portfolio company has just gone public.

There are also covenants written in favor of the general partners. Sometimes they can retain the cash proceeds for a period of up to 3 months. Moreover, they might pretend a payment in kind of marketable securities. This payment could create more costs for limited partners, or even set penalties if the limited partners sell their stakes or default on a capital call.

[8] Gompers and Lerner, 2000.

Figure 4: Management fees and carried interest[9] (1984-2010)

		Buyout
Full Sample:		
Number of Funds		542
Total Committed Capital		$535,485
Total LP Capital		$525,276
Total GP Capital		$10,209
Mean Fund Size ($M)		987.98
Median Fund Size ($M)		312.91
St. Dev. Fund Size ($M)		2291.21
Management Fees:		
Initial Fee (% per year):	Mean	1.78
	Median	2.00
	St. Dev.	0.45
Lifetime Fees (% of fund size):	Mean	14.49
	Median	14.23
	St. Dev.	5.05
PV Lifetime Fees (% of fund size):	Mean	11.65
	Median	11.52
	St. Dev.	3.81
Fraction with:		
	Initial Fee = 1.5%	0.23
	Initial Fee = 2.0%	0.43
	Initial Fee = 2.5%	0.07
	Initial Fee Basis = Committed Capital	0.92
	Fee % Changes	0.40
	Fee Basis Changes	0.43
	Either Fee % or Fee Basis Changes	0.59
	Both Fee % and Fee Basis Change	0.24
Carried Interest:		
Mean Carry (%)		19.96
Median Carry (%)		20.00
St. Dev. Carry (%)		1.33
Fraction with Carry = 20%		0.97
Fraction with Carry < 20%		0.02
Fraction with Carry > 20%		0.01

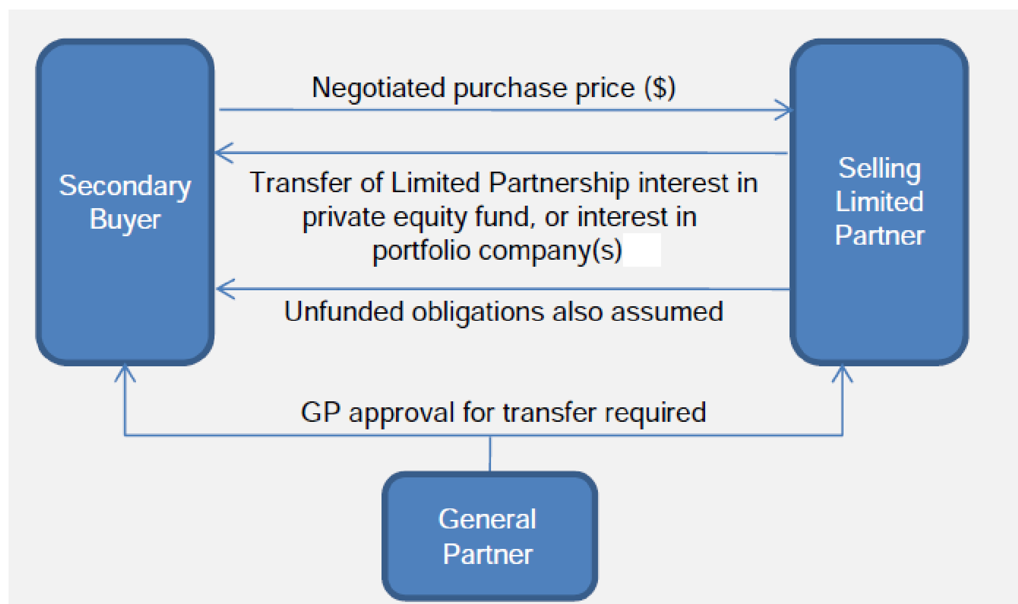
Source: Cyclicality, Performance Measurement, And Cash Flow Liquidity In Private Equity. Robinson And Sensoy (2011)

[9] PV lifetime fees is the present value of the lifetime fees discounted by the 10-year treasury rate at the inception of the fund. All dollar amounts are in millions of US dollars.

1.2.3 Secondary market

Since a private equity fund is a closed-end fund, investors cannot sell back their shares to the fund managers. Private equity investments are intended to be long-term investments, but sometimes limited partners need to exit their investments. As instances, they might want to free up cash or become disillusioned with possible losses. In these cases, it is usually possible for limited partners, depending on the partnership agreement clauses, to sell their private equity investments to a third party. Usually, general partners must give their approval to any sale.

Figure 5: Structure of a limited partnership interest sale

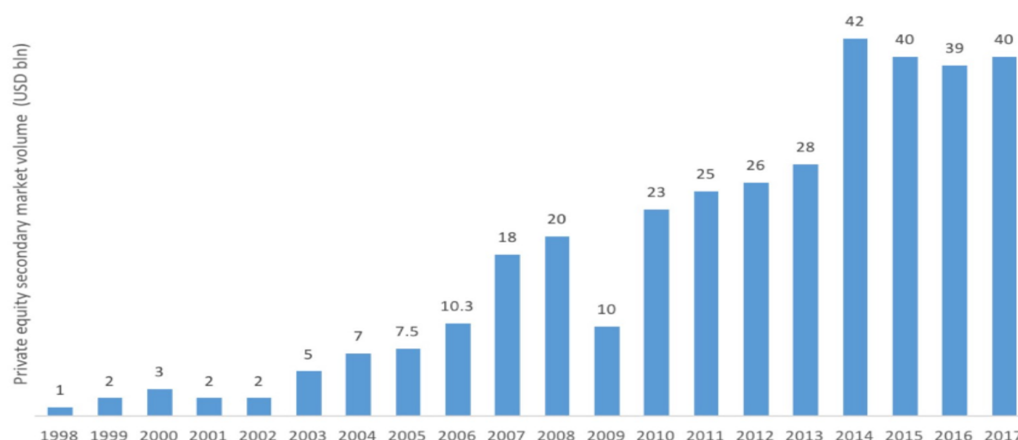


Source: Investment Banks, Hedge Funds and Private Equity – David Stowell (2012)

There are two types of private equity secondary transactions: the direct interest purchase and the fund interest purchase. In a direct interest purchase, the buyer purchases a direct interest in an operating company or a portfolio of companies from another investor that wants liquidity. In a fund interest purchase, the buyer purchases the limited partnership interest in a private equity fund from a pre-existing investor in that fund. The sale of limited partnership interests is the most common secondary transaction in the private equity market.

There is no listed public market for private equity investments. Instead, there is a growth, unregulated secondary market, which is driven by investment banks and other advisors. This market creates a certain amount of liquidity to enable limited partners to sell their interest in a private equity fund to another party.

Figure 6: Global private equity secondary market volume



Source: How pricing and volume drove the private equity secondary market in 2018. Multiplicity Partners

The main advantage of investors in the private equity secondary market is that they can deal with funds that have already deployed a significant amount of capital. Therefore, these funds usually have already a consistent track record. Instead of making a blind commitment, in the secondary market, investors can analyze the actual assets that general partners have purchased. Moreover, they have access to more data and information for making their investment decision. Consequently, secondary investments are at lower risk and usually sell at a discount because of the longer duration of private equity fund investments compared to secondary market investments.

1.3 LBO ANALYSIS

In order to understand what makes a private equity fund successful, it is fundamental to know how private equity professionals generate the fund IRR. This process follows the typical steps of a financial valuation of an LBO.
The purchase price is the highest price that investors can pay for a company in order to earn an Internal Rate of Return that meets the investors` risk-adjusted return requirements. Since the purchase price depends on the level of debt, it is necessary to consider the leverage and equity characteristics of an LBO. Financial buyers have historically targeted an IRR of 20-30% on their investments[10]. However, these targets depend on the historical global economic conditions[11].

An LBO analysis includes operating assumptions and projections for the standalone company to arrive at EBITDA and cash flow available for debt repayment over the investment horizon of 3-7 years. With the estimate of necessary cash flows, it is possible to build a sustainable capital structure. An optimal capital structure should be a suited combination of senior debt, subordinated debt, and equity that results in realistic financial coverage.

The next step is the estimate of the multiple at which the general partners are expected to exit the investment, the IRR to general partners and all other required multiples. Finally, the terminal value of the target company and the corresponding price per share that meets all the other parameters.
The LBO analysis also includes projections of dividends that general partners must pay out to limited partners.

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[10] Referring to the total return of the investment, which is different from the return that limited partners receive.
[11] In times of economic crisis returns did not exceed 20%.

1.3.1 LBO Returns

General partners evaluate investment opportunities by looking at the expected IRR, which measures returns on invested equity.

Unlike other asset classes, an investment in a private equity fund represents an investment in a stream of cash flows. This series of cash outflows are drowned down by general partners. However, the timing and number of outflows are uncertain. The only certain aspect is that the total value of the outflows cannot exceed the committed capital. Cash inflows to limited partners are uncertain as well. General partners distribute the proceeds of the investments when they realize it.

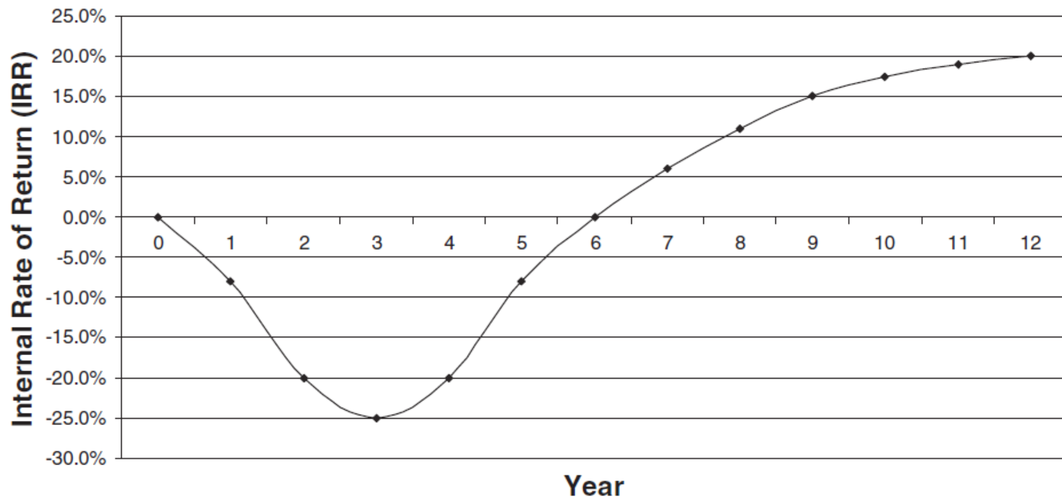
Consequently, it is not possible to predict in advance the amount of the proceeds or when general partners will distribute them. From the investor's point of view, the calculation of the annual return is affected by fortune. The most significant inflows tend to occur towards the end of the fund's life rather than towards the beginning.

It is clear, then, that we need to look at the compound return overtime of a private equity fund in order to validly assess its performance. For these reasons, LBO analysis usually relies on a transaction`s total return (debt and equity). This return is then discounted by the return on industry sectors that are presumed to have the same exposure to systematic risk as the private equity company. Otherwise, the private equity professional may use estimates of the target firm`s asset beta[12].

The internal rate of return follows a pattern called the J – Curve. Private equity funds tend to demonstrate a decline in value during the early years of existence[13] before beginning to show the positive returns in later years of the fund's life[14].

[12] Ayash, 2017.
[13] The so-called "valley of tears".
[14] Fraser-Sampson, 2007.

Figure 7: Illustration of the typical J curve of a private equity fund



Source: Private Equity as an Asset Class - Guy Fraser-Sampson (2007)

Three main factors generate the return of an LBO. The primary way in which general partners create value is an efficient capital structure. Using leverage to finance the acquisition lower the WACC because the cost of debt is lower than the cost of general partners` equity. As cash flows pay down the debt, the value of equity increases, and capital gains generate wealthy returns.

General partners can also create value through operational enhancements like an organic growth of the target company, cost-cutting policies, or M&A operations that create synergies.

Finally, the expansion of financial multiples can improve the value of the target company. This enhancement is more "market-driven" than the capital structure and operational gains, but it is still an improvement that many general partners try to achieve.

Beyond these essential factors, general partners are also known to use timing and other distribution tactics such as dividend recapitalization to accentuate their IRR`s.

Other widely used metrics of performances of private equity funds are three multiples: DPI, RVPI, and TVPI[15].

[15] Kaplan and Schoar, 2003

The DPI is the value of cash and stocks that the fund has distributed to Limited Partners. According to the path of returns, even DPI is lower in the early stages of the fund`s life and becomes higher as general partners exit their investments. This measure is also called the “Cash on Cash metric” to enhance the fact that it is a measure of liquidity. Limited Partners usually look for a 2.0x – 5.0x DPI in a fund.

The RVPI is the remaining value of the fund at a given point in time. This value is the sum of the funds` investments and the fund assets less the fund liabilities. The RVPI follows a reverse pattern in comparison with the DPI pattern. RVPI is higher in the first year of the fund life and declines as general partners distribute proceeds to limited partners.

The TVPI is the complete multiple and is the sum of DPI and RVPI. The pattern of TVPI follows the J-curve shape: as general partners make distributions, the RVPI goes down, and the TVPI will stabilize.
Return multiples are easy to calculate and represent a good benchmark for investors. However, they have some issues. They do not consider the time value of money, rely on general partners’ valuations, do not consider the leverage of investments and the potential re-cycle of proceeds in the fund.

One last essential measure of performance is the PME developed by Kaplan and Schoar in 2005. This measure is equal to the total discounted distributions over the total discounted calls.
The PME is the only measure that considers the opportunity cost of private equity investments, driven by the co-movement of private and public equity returns. The PME uses the realized total return on the S&P 500 from the fund`s inception to the date of the cash flow as the discount rate.

Figure 8: Cash flow performance of 910 buyout funds (1984 - 2010)

Sample:	Buyout Funds Full (N=542)	Buyout Funds Liquidated (N=368)
IRR:		
Mean	0.09	0.12
Median	0.09	0.10
St. Dev.	0.26	0.28
25th %ile	-0.02	-0.01
75th %ile	0.19	0.22
TVPI:		
Mean	1.51	1.57
Median	1.36	1.45
St. Dev.	0.86	0.80
25th %ile	0.95	0.99
75th %ile	1.84	1.90
S&P PME:		
Mean	1.19	1.18
Median	1.09	1.09
St. Dev.	0.61	0.56
25th %ile	0.82	0.82
75th %ile	1.46	1.46

Source: Cyclicality, Performance Measurement, And Cash Flow Liquidity in Private Equity. Robinson and Sensoy (2011)

1.3.2 LBO Valuation

The valuation of an LBO is the analysis that models the price of the target company. The analysis includes the holding period, exit price, repayment of interim restructuring, and the financing of the deal.

The starting point of the valuation is to determine the cash flow available to service debt for the acquisition.

The formula to calculate cash flows is the following:

Net Income
+ Depreciation and amortization
± Changes in deferred taxes
± Other noncash changes
± Changes in net working capital
= Cash flow from operations
− Capital expenditures

= Cash flow available for debt service

The next step is the determination of the physiological amount of debt that can be used to finance the acquisition. At this stage, the role of advisors is fundamental. General partners discuss with investment bankers about the market`s tolerance for debt, given the cash flows available, the risks associated with the target company business and the general performance of the target company industry[16]. Equity holders bear not only operational risk but also interest risk due to significant financial leverage. Interest costs represent fixed costs for general partners, that can force the partnership to default if not paid. For this reason, sometimes investment bankers and general partners agree to lower the amount of debt. They might take this decision even if the business is generating stable cash flows if the target company is operating in a very volatile environment.

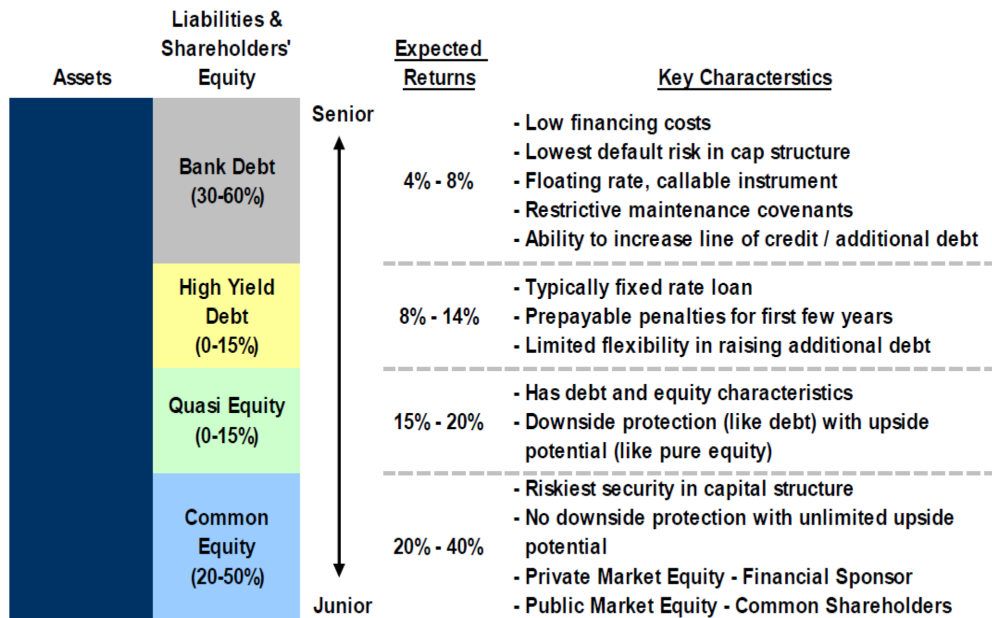
When the maximum appropriate amount of debt is determined, general partners and advisors, according to the analysis of all risks associated with the investment, proceed to establish the sources of debt. They may include senior credit facilities, second lien loans, high yield debt, and mezzanine financing.
Partnership managers and investment bankers consider some key credit statistics in this transition. The most important are:

- Total Debt / EBITDA
- Senior bank Debt / EBITDA
- EBITDA / Interest Coverage
- Bank Debt Payoff
- Equity Contribution

The composition of debt structure heavily influences how the target company runs its operations since interest costs are fixed costs for the business.

[16] Stowell, 2012.

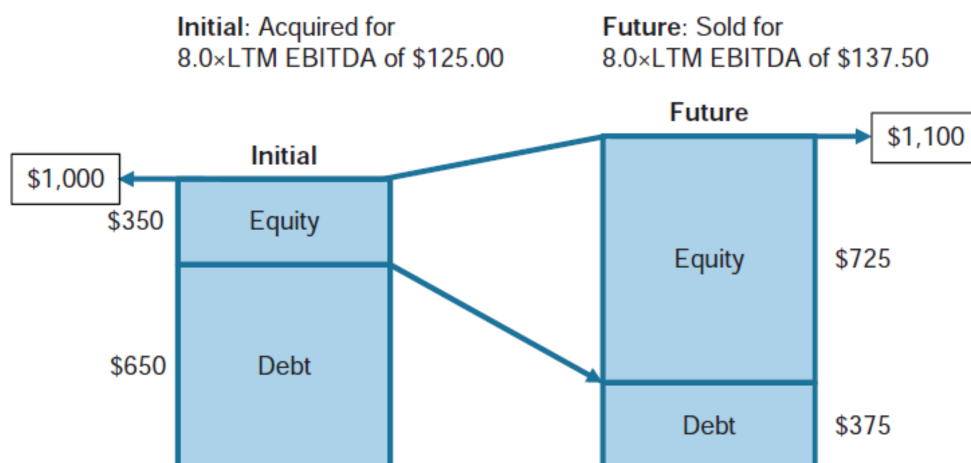
Figure 9: Typical capital structure of an LBO



Source: www.streetofwalls.com

The next step is to calculate the IRR by looking at the equity portion of the purchase price, dividend payments to be made, and the expected market value of the equity at the exit date.

Figure 10: IRR generating process through deleveraging in an LBO



Source: Investment Banks, Hedge Funds and Private Equity. Stowell (2012)

If the resulting IRR is below an acceptable level for general partners, they may lower the purchase price or the equity contribution and increase the debt component. General partners also consider risks associated with the investment: they may accept a lower IRR if it is related to a lower risk. They also look at the multiple of the expected equity at the time of exit relative to the initial equity investment. In this sense, they will try to achieve a balance between maximizing IRR and maximizing the total cash amount taken out of the investment when they exit the investment.

Finally, general partners determine the purchase price based on a multiple of enterprise value to EBITDA, in respect of the targeted IRR. They also project a future sale price according to the sale multiple used to determine the original purchase price. However, general partners may use a comparable company multiple if they plan to complete the ultimate sale through an IPO. Otherwise, comparable transactions multiple may be appropriate for an M&A sale. Also, general partners could increase the sale multiple if they expect positive changes in the industry or management or decreased if they expect negative changes[17].

[17] Stowell, 2012.

CHAPTER 2

Leveraged buyout value drivers

2.1 MARKET EVOLUTION (1980 – 2019)

The first relevant buyout of the history dated to 1979 when Kohlberg Kravis Roberts struck an agreement to buy Houdaille Industries for $380 million. At that time, KKR was a little-known investment firm founded only three years earlier with few acquisitions on its track record. Some primordial buyout activities, regarding little private companies, began in late 1950. Wall Street bankers already knew the concepts and financial techniques of leveraged buyouts. However, Houdaille Industries represented a revolutionary deal. Not only the target was the first public company to be purchased in a buyout transaction, but the amount of debt issued has never been that high: $306 million.

Houdaille was an industrial manufacturer of primary products for niche markets. His business included 19 different units, out of which most were powerful cash generators, and others were not producing significant revenues. KKR management planned to maintain a core business in machine tools and industrial products and to make some accurate divestitures of the underperforming units[18]. At the same time, Houdaille Industries represented a very appetible target. It had $55 million in cash and only $25 million of debt, so the tax shelter represented a feasible potential improvement. In that period, Houdaille's leading businesses were booming, and interest rates were moderate enough to accommodate leveraged buyouts. When KKR announced the intention to purchase Houdaille for 40$ per share, the stock price jumped from 20$ to 31$. It did not reach 40$ until the deal eve because Wall Street was still very skeptic about this significant and uncommon transaction. In the first years of KKR ownership, Houdaille had an excellent success: sales were growing and generating cash, which was paying

[18] Baker and Smith, 1998.

down the debt quickly. In the first 80's Houdaille business suffered the 1981-1982 recession and the Japanese competition. The high amount of debt that Houdaille was still holding caused significant consequences to his financial metrics and interest expenses began to burden on the income statements. The company recovered when KKR set up a recapitalization and in 1984 Houdaille acquired Warren Rupp Company, an industrial pump manufacturer. Eventually, KKR exited the deal with a 33.9% annual return, selling Houdaille to a UK manufacturer.

Houdaille set the stage for an explosion of leveraged buyouts during the1980s. For an estimate of the size of the potential private equity market in this period, at first, it must be considered the size of the stock market. The total market capitalization of listed domestic companies in the US was approximately $1360 billion[19]. It is possible, then, to assume that at least 1% of publicly traded companies could have been taken private in a leveraged buyout that could potentially generate a profit. Therefore, there was more than $100 billion value of companies on sale for the few private equity firms that populated the market at that time.

In 1982, a buyout shop called Wesray showed the potential profit that an LBO could generate through the purchase of Gibson Greeting Cards. Wesray invested $1 million of equity and borrowed $ 79 million of financing debt for the transaction. Less than two years later Wesray took the company public in a stock offering that valued Gibson Greeting Cards at $290 million, generating profits of almost 300 times the initial investment. This incredible result was possible thanks to the fast recovering from the recession that pushed up the value of the stocks.

During the 1980's, the rise of corporate conglomerates fueled buyout activities. General partners aimed to set up business models focused on the principal entrepreneurial activity of the target company and disposing of unessential parts. The decade from mid-80's to mid-90's is also called the Drexel Decade. An unlimited amount of junk bonds characterized these years, thanks to by the investment bank which invented junk bonds: Drexel Burnham Lambert. Before the Drexel decade, private equity firms raised senior and mezzanine debt. Banks issued the senior debt, while a handful of big insurance

[19] According to the World Federation of Exchanges Database.

companies issued mezzanine debt. However, mezzanine debt had very stringent terms[20]. When the junk bonds started to be issued, after the recession, they soon substitute mezzanine debt. The main advantage of using junk bonds instead of mezzanine debt was that junk bonds were readily available in a short time. Consequently, junior debt was particularly suitable for takeovers, where delays are always in favor of the target company[21]. Junior debt was indeed more expensive than mezzanine in terms of returns, but it had not the strict terms that insurance companies were imposing. The "fallen angels" were the typical companies that issued junk bonds. Fallen angels are firms that are going through bad times and have a low rating but had proven to be profitable companies in the past. The Drexel Decade report the lowest percentage of equity over debt of the buyout history: 5-15%.

Figure 11: Evolution of the number of junk bonds held by US companies in billions of US dollars (1970 – 1985)

Year	Total Public Straight Bonds[a] (1)	Public Straight Junk Bonds[a] (2)	(2) as % of (1) (3)	Total Corporate Bonds[b] (4)	(2) as % of (4) (5)
1985	410.0	59.1	14.5	653.7	9.0
1984	371.1	41.7	11.2	568.9	7.3
1983	339.9	28.2	8.3	518.0	5.4
1982	320.9	18.5	5.8	487.4	3.8
1981	303.8	17.4	5.7	458.6	3.8
1980	282.0	15.1	5.4	431.7	3.5
1979	245.0	9.4	3.8	370.8	2.5
1978	245.0	9.4	3.8	370.8	2.5
1977	228.5	8.5	3.7	333.1	2.6
1976	209.9	8.0	3.8	304.4	2.6
1975	187.9	7.7	4.1	277.7	2.7
1974	167.0	11.1	6.6	251.9	4.4
1973	154.8	8.1	5.2	233.2	3.5
1972	145.7	7.1	4.9	219.1	3.2
1971	132.5	6.6	5.0	200.2	3.3
1970	116.2	7.0	6.0	176.5	4.0

[a]Measured as of June 30 for each year. Source: Altman and Nammacher (1985b, 1986).
[b]Average of beginning and ending years' figures. Source: Board of Governors of Federal Reserve System.

Source: The growth of the "Junk" Bond Market and Its Role in Financing Takeovers. Taggart (1987)

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[20] Usually, insurance companies asked for very high rates of returns and an equity stake if the deal would have turned up well.
[21] Taggart, 1987.

In general, public companies did not target junk bonds. However, this kind of debt ended up in the balance sheet of leveraged buyouts target companies because it was ideal for takeovers. Consequently, hostile bidders could come up quickly with a high amount of debt to buy the target company. In this case, the management would not have enough time to set up a defensive strategy. Many times, these buyers had the only purpose of acting an asset stripping.

Therefore, the junior debt did not fuel only LBOs, but also the vilify activity of corporate raiders. Corporate raiders focused on undervalued stocks, like buyout artists. However, their purpose was not to take control of the company. Instead, they would sell the valuable units and exit at a profit. Corporate raiders left what remained of the target company with an unsustainable amount of debt[22]. They looked at firms inefficiently managed and offered to buy the shares to that shareholders who were attempting to change the management. After buying shares, the raiders stepped into the board of directors of the target company and took some initiatives to increase the shares price. If the shares reached a value high enough, raiders would have sold them to the best buyer.

There are cases where the target company purchased its shares by paying a premium price to raiders. This practice was known as green mailing. Greenmails became famous in 1984 when the number of companies' buyback programs jumped on 575, compared to 200 of the previous year. Even if the majority of buyback programs are typically aimed to reinforce the general market sentiment about the companies' share prices, this increase was related to greenmail payments[23]. Therefore, in 1984, greenmails repurchase amounted to $3,5 billion with a total payment of premiums of $600 million, considering the excesses on market prices[24].

After a short time, the world began to look at leveraged buyouts unpleasantly. KKR deals were defamed too because it looked like a corporate raiding to many Wall Street journalists. Even if they did not bypass the board, they publicly announced unsolicited offers for companies and used the Drexel debt. However, there is a big difference in

[22] Most of these filed for bankruptcy a few years later.
[23] Lester-Lawson, 1985.
[24] The Harvard Law Review Association, 1985.

buying a company, tear it down and gain a quick profit and buying a company, growing the business, and enhance its value. The claim that private equity systematically damages companies is just wrong. The buyout business would never have survived if that was true[25]. Many times, buyout companies came up to save target companies from raiders. The most successful case is the LBO of Safeway in 1986. KKR played the role of the so-called white knights, saving Safeway[26] from the hostile tender offer of "The Dart Group".

Eventually, the buyout industry attracted significant attention when the largest LBO of that period took place: the $31.1 billion buyout of RJR Nabisco by KKR in 1988. In order to understand the impact of this deal, one should consider that the largest LBO so far was the $6.2 billion takeover of Beatrice Foods from KKR in 1986. RJR Nabisco, founded in 1875, was primarily a tobacco company. Its other main business was a food subsidiary formed in 1967 through a series of acquisitions. It is possible to summarize the plan of KKR with the letter that they sent to the special committee[27]:

"We do not contemplate the dismemberment of the company`s operations…. Our present intention is to retain all of the tobacco business. We also expect to retain a significant portion of the food operations. Moreover, our financing plan does not require, nor we intend any presales of parts of the company."

Just a few years later, KKR was forced to invest an additional 1.7 billion of equity in a recapitalization.

The end of the 1980s saw the bankruptcy of many large buyouts caused by a dramatic credit shortage. At the end of 1988, Drexel Burnham Lambert was declared guilty of criminal charges, and a few months later its founder Michael Milken left the bank. In a short time, all the Drexel clients had no more refinancing opportunities. The situation got much more worsen as investors' risk attitude changed quickly. The junk bonds were the riskiest form of debt, and it became almost impossible to sell them. The target companies of leveraged buyout found themselves with a very high amount of debt that

[25] Carey and Morris, 2012.
[26] Fisher, 1988.
[27] Ruback, 2006.

was showing increasing default rates and no possibilities of refinancing. Interest expenses became unsustainable for many of them, which, in the worst cases, caused bankruptcy.

The general disappointment of the buyout industry grew in 1989. In that year, Bryan Burrough e John Helyar publicized the book "Barbarians at the Gate: The Fall of RJR Nabisco" which quickly became a best seller. The financial world was now aware of how risky an LBO could be when it places a large amount of low-quality debt in a target company.

The US government undertook some initiatives aimed to reduce the hostile takeovers, and the junk bond market ended when Drexel filed for bankruptcy in February 1990. In the next years, the LBO activity was significantly lower. The financial meltdown flamed out several buyout players for different reasons. Some of these had suffered significant loses for a string of wipeouts[28]. Others lost too much money in single investments[29]. Many of the smallest buyout boutiques could not face leveraged buyouts anymore with the new strict market conditions.

The largest firms, like KKR, eventually survived, but all of them suffered substantial loses. A substantially higher percentage of equity invested characterized the LBOs of this period: 20 – 40%. There was also a higher reputation among private equity firms since general partners focused more on long term growth. While during the 1980s the largest LBOs were all signed by KKR, during the second half of the 1990s, some new funds began to score several large transactions. The most remarkable was Blackstone, founded in 1985. KKR would never again be a market leader to the degree that it had in the 1980s.

This trend stopped in 2001 when the private equity market was affected by the burst of the internet bubble, which threatened those funds which had significant investments in the telecommunication industry. In a few years, the market recovered, and the golden age of private equity began. The so-called "Age of Mega Buyouts" was characterized by a cheap and readily available debt, thanks to decreased interest rates. There was also

[28] I.e., Adler & Shaykin.
[29] I.e., Lodestar Group, Wasserstein Perella.

a legal reason for this boom: the Sarbanes – Oxley Act of 2002 placed many requirements for public companies that had to run in high legal expenses. So, going private was a very appetible option. The most successful funds were now so large that some of these went public in these years: Apollo Global Management in 2006, Blackstone and KKR in 2007, The Carlyle Group in 2011.

The credit crisis of 2008 caused significant effects to the funds which had just purchased companies at the peak of the market. Some of these had difficulties in paying down dividends to investors. The volumes collapsed since there was no more debt available for new transactions. However, the fate of private equity companies was much brighter than the fate of many banks, which have been subject to government bailouts. Only a small fraction of private equity companies went into bankruptcy without taking down other institutions[30]. The revival came in thanks to the government stimulus package of 2019, which provided $787 billion of capital to be invested[31].

The most recent history represents a brilliant success for private equity companies. General partners are focused more and more on building up the acquired companies. The expansion is including new business sectors, and deals are growing in size, dividends, and valuation multiples.

2.2 VALUE GENERATION

2.2.1 The Agency Theory

A first crucial theoretical view on value creation in leveraged buyouts is the Agency Theory. In the Agency Theory[32], the shareholders of a company have to run into agency costs to preserve their interests from certain management behaviors. There are three types of agency costs: monitoring expenditures, incentives to management, and the residual loss.

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[30] Carey and Morris, 2012.
[31] Blackstone alone received $29 billion.
[32] Jensen and Meckling, 1976.

In a "going private" transaction, the mitigation of agency problems associated with free cash flows is a significant source of gain[33]. Free cash flows refer to the definition of Jensen and Meckling: "*cash flows handled by management that are in excess of the sum of the positive NPVs of all projects discounted at the relevant discount rate*". This excess may be a source of inefficiencies and value destruction. Indeed, management can use excess cash flows to retain control of the company or to fund unprofitable investments. The excess of free cash flows is a particular issue for mature companies that generate steady revenues and have few remaining investment opportunities. These kinds of firms are typically companies in the steel, chemical, tobacco, paper, and textile industries[34]. The higher pressure to fund bad investments is in companies that must shrink, as the sale of assets or business units generate a high amount of cash available[35]. This agency issue is solved once a governance reorganization occurs, in the case of a buyout[36]. At first, the excess free cash flows are paid out as interest expenses to debt holders or as dividends to equity holders and will no longer create inefficiencies[37].

The high amount of debt imposes a different operating regime, where management is forced to run the company efficiently in order to avoid default risks[38]. Debt allows the market to evaluate the company, its management, and its proposed projects. The market assessment can be deducted by the price that investors pay for financial claims[39]. This effect is not verifiable in an unleveraged environment, as the management has much more control over dividend payout than on interest expenses. Eventually, the new organization can provide a more efficient system of incentives for management and monitoring expenses[40]. In public to private transactions, the management is required to make a meaningful investment in the company, so their ownership stake increases significantly[41]. The management is exposed to relevant upside potential, but also to an equal downside risk, which will represent an incentive to perform well. Their equity is

[33] Lehn & Paulsen, 1989.
[34] Eun & Resnick, 2011.
[35] Jensen, 1986.
[36] Kaplan, 1989.
[37] Jensen, 1989.
[38] Lowenstein, 1985.
[39] Jensen, 1986.
[40] Jensen, 1989.
[41] Kaplan, 1989.

also illiquid because the company is private, which means that they cannot sell their shares at a profit until the value required by investors is realized.

Figure 12: Stock returns related to announcements of changes in capital structure

Type of Transaction	*Security Issued*	*Security Retired*	*Average Sample Size*	*Two-Day Announcement Period Return*
Leverage-increasing Transactions				
Exchange offer[a]		Common	52	14.0%
	Debt			
Exchange offer[a]	Preferred	Common	9	8.3
Exchange offer[a]	Debt	Preferred	24	3.5
Exchange offer[b]	Income bonds	Preferred	24	2.2
Repurchase[c]	none	Common	413	6.4
Security issue[d]	Debt	none	150	-0.4[g]
Security issue[d]	Convertible debt	none	132	-2.3
Leverage-Reducing Transactions				
Exchange offer[a]	Common		20	-9.9
		Debt		
Exchange offer[a]	Common	Preferred	30	-2.6
Exchange offer[a]	Preferred	Debt	9	-7.7
Security issue[e]	Common	none	408	-2.1
Convertible Conversion-forcing call[f]	Common	Convertible bond	113	-2.1
Convertible Conversion-forcing call[f]	Common	Convertible preferred	57	-0.4[g]

[a] Source: Masulis (1983). (Note: These returns include announcement days of both the original offer and, for about 40 percent of the sample, a second announcement of specific terms of the exchange.)
[b] Source: McConnell and Schlarbaum (1981).

Source: Stockholder, Manager, and Creditor Interests: Applications of Agency Theory. Jensen and Smith (1985)

Figure 12 implies two relevant evidences:

- bidders can perform abnormally before the acquisition
- announcements of leverage-increasing transactions boost the price of the shares, while announcements of leverage-decreasing transactions reduce it

The agency theory could also explain the high return generated when the investment firm sells the target company shares to a third party. This abnormal profit could be associated with asymmetric information used by the private equity firm to take advantage of the fact that it has better information than the new buyer.

2.2.2 Value generation models

The fundamental model of value generation in leveraged buyouts consists of five classes of drivers: financial engineering, governance engineering, operational engineering, strategic refocus, and financial arbitrage.

Financial engineering is the most characteristic driver of leveraged buyouts and has general partners have used it since the first wave of buyouts in the 1980s. Financial engineering is the design and development of innovative financial instruments and processes to solve corporate finance problems[42]. In a leveraged buyout, the mechanism of paying down debt with the company cash flows is a classic financial engineering technique. The most significant advantage for the private equity industry is the tax shelter that comes up with increased interest expenses.

Governance engineering consists of corporate governance restructuring. These enhancements could increase profits with the mitigation of agency conflicts, a well working system of incentives, and the disposal of free cash flows.

Operational engineering became popular in the second wave of leveraged buyouts in the mid-1990s. This concept is strictly related to the industry in which the target company operates[43]. In this view, private equity funds should hire professionals with specific industry background and operational skills to support finance experts. In the top private equity firms, the collaboration between these two kinds of professional roles is ideally suited for identifying the best investment opportunities. The private equity ownership could also provide a set of precious knowledge of the target industry from the vast network of contacts that characterize the most successful private equity funds[44]. Moreover, the operational strategy that most funds use to create value is a cost-cutting strategy aimed to remove suboptimal investments from capital expenditure[45].

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[42] Finnerty, 1988.
[43] Kaplan and Strömberg, 2009.
[44] Laskowski, 2012.
[45] Phan and Hill, 1995

Other operational strategies are productivity improvements, upgrades of management quality, strategic repositioning, and M&A transactions[46].

Strategic redirection is the driver most used in recent times. The key to creating value, in this case, is to focus on core business improvements in a company with fragmented units. The ideal target company is a firm with precious central business, which is dragged down by underperforming secondary units. In the past, the solution to underperforming secondary business was to dispose of such units. However, in recent years, private equity funds are more focused on aligning all the units of the company to the strategic operating model of the core business. In addition to strategic redirection, general partners could also obtain a competitive advantage thanks to improvements in product quality, prices, positioning, customer services, and distribution channels[47].

Finally, financial arbitrage has been widely used by private equity funds since the first buyout activities. This driver differs from the others since value is not generated but captured from the market thanks to positive fluctuations of the business cycle or a favorable trend of the target industry. A classic example of value capture in leveraged buyouts is the advantage of conglomerate discounts. In this case, the private equity firm acquires a multi-business company and sells the single units at a price which is net of the conglomerate discount[48].

Summarizing all the analyzed drivers, we can make a further distinction between direct and indirect drivers. Direct drivers, like financial engineering and operational engineering, have a direct impact on financial multiples. Indirect drivers bring positive changes that affect profit margins in the long term.
Once the set of value-generating drivers is defined, it is essential to determine the right balance of profitable initiatives and on which driver the general partners should focus more. According to history, the most valuable drivers are operating, strategic, and governance enhancements. By focusing on these improvements, private equity

[46] Acharya and Kehoe, 2008.
[47] Berg & Gottschalg 2004.
[48] DeAngelo, 1984.

companies have struck the most important deals of all time, gaining a positive reputation and the possibility to raise more and more funds. However, value drivers have changed over time. In the 1980s, the high leverage used thanks to the Drexel junk bonds made sure that private equity firms created gains through deleveraging and financial engineering. In the 1990s with no more junior debt available, multiple arbitrage and the business cycle benefits became more popular. Eventually, operational, strategic, and governance improvements became relevant in the 2000s with general partners focus on making the target company a market leader, which is the most profitable possible result.

Figure 13: Evolution of value creation in private equity deals

Source: How Private Equity Firms Fuel Next-Level Creation. Brigl, Jansen, Schwetzler, Hammer and Hinrichs (2016)

One last relative factor to highlight is that private equity performances show a steady persistence. The top-performing firms have a significantly above-average chance of having their next fund also feature in the top performers, deliver higher returns, and increase the size of their transactions[49]. The returns of these top players are well above

[49] Gadiesh and MacArthur, 2008.

the average annual return of the S&P 500, with a top- quartile return of 36% on average. The best of these reach a triple-digit rate of return.

2.2.3 Costs review

The expenses of a private equity fund are divided into three macro classes: organizational expenses, operating expenses, and manager expenses.
The organizational expenses refer to the startup costs of setting up the buyout fund, organize the business, and look for investors. Start-up costs are very high in the private equity industry. However, general partners usually agree to defer it until they close the fund and then charge it to limited partners. The main reason why startup costs are so high is that there are relevant legal costs associated with many regulatory requirements. General partners usually agree with the attorneys to defer all legal costs. Attorneys will postpone these payments only if they are confident that general partners will raise the requested capital in a certain period. In this phase, general partners will face expenses related to the negotiation of the partnership agreement and the regulatory filings required for the fund, beyond the costs related to the review of all documents including the offering memorandum, subscription documents, and questionnaires to potential investors.

There could also be significant travel and entertaining costs while starting up the business, since raising the desired amount of capital is the hardest part of setting up a fund. The first thing that investors demand while investing in private equity is a good track record. Consequently, it is very hard for the founders to convince investors with only a promotional letter on their hands. Most of the fund-raising trips are often fruitless. For instance, when Blackstone started his first fund, the founders had considered eighteen US institutions as potential candidates. All eighteen denied the offer, and at last, the founders had to turn up to Japanese financial firms, lining up several meetings in Japan, which have been very expensive[50].

[50] Carey and Morris, 2012.

The operating agreement includes provisions requiring the limited partners to cover the costs of establishing the fund once the capital is locked up. So, when investors pay their capital commitments, general partners are reimbursed of all out-of-pocket expenses. Organizational expenses are typically capped with a fixed dollar amount or a percentage of the fund`s size. In such cases, the excess above the cap is borne by the sponsor through a reduction of management fees[51].
Eventually, general partners could also hire a placement agent to support them in finding investors. The placement agent usually requires a monthly provision and a percentage of the total raised capital, about 2%, fully paid by general partners.

The operating expenses are typically borne by limited partners out of their capital commitments and in most cases do not have a cap. Operating expenses include the management fees planned in the compensation package and acquisition and disposition fees generated by the purchase, holding, and disposition of the fund`s investments. There could also be broken deal expenses that are paid by the target company to terminate the purchase agreement in order to accept a better offer from a third party. The fund itself often pays these expenses. Limited partners also pay finder`s fees that could be higher or lower depending on the abilities of general partners to screening for an excellent target company. Operating expenses also include holding costs like travel expenses that are covered by the fund in the limit of the acquisition and disposition of investments. Holding costs also include expenses of service providers: any administrators, custodians, counsel, accountants, and auditors. Other kinds of operating expenses are the cost of producing reports to investors, expenses for insurance, and taxes.

At last, manager expenses are all the costs faced by general partners and company management. According to the partnership agreement, some expenses cannot be covered by the investor’s capital contributions and deal proceeds. The expenses of general partners are generally limited to audit and legal expenses. However, there could also be extraordinary expenses like indemnity obligations and litigation costs which

[51] Debevoise & Plimpton, 2015.

could impair the fund performances. The sources of capital used to pay these expenses are usually the fees that general partners receive from the fund. The managers pay all expenses related to the administrative and overhead expenses incurred in managing the fund. This set of costs typically includes staff expenses like salaries, benefits, health insurance, and consultant fees. Managers could also be required to face monitoring, rent, travel, and entertainment expenses.

2.3 DIRECT DRIVERS

2.3.1 Financial Drivers

The financial drivers of an LBOs rely on the capital structure of the deal. The core objective of the financial structure is to minimize the after-tax WACC of the target company by taking advantage of the fact that debt interest payments typically are tax-deductible[52]. Consequently, financial drivers do not depend on the characteristics of the target company. They depend on the structure of the deal[53].

A successful key is the network of contact of general partners and relationships with investment banks since advisors are fundamental players that help general partners to raise capital. The private equity firm with the best reputation among investment banks is the most likely to have access to more debt financing, better spread, longer maturities, favorable covenants, and fees. As reported by Demiroglu & James (2007), the reputation of private equity firms plays an essential role when credit risk spreads are low, and lending standards are lax.

The quality of the board members may also be a financial driver as well. Better financial professionals are more likely to build up an excellent structure for the leveraged buyout models. A recent study of Zarutskie (2010), finds out that financial expertise is essential in restructuring and raising capital while purchasing large and mature companies.

[52] Hannus, 2015.
[53] The amount of debt that is issued, the source of debt, and the quality of financial expertise.

Buyout returns strongly depend on market conditions and on debt market liquidity[54]. Private equity firms may take advantage of mispricing in the debt and equity markets[55]. The key to success for buyout funds is to take advantage of market cyclicity. They do it by financing deals with more equity when market returns are low and with more debt when market returns are high[56]. In general, if market conditions allow easy access to leverage, private equity funds will have an incentive to lever deals as much as possible. Therefore, the amount of debt raised by private equity funds is procyclical and reach peaks when credit market conditions are favorable. However, operating in a highly leveraged environment could be a favorable condition only before the debt market becomes overheated, causing the so-called "money chasing deals" phenomenon[57]. When the leverage buyouts market is saturated, there is high competition for a few investment opportunities, but there could be favorable credit conditions.

Consequently, private equity returns tend to deteriorate, since buyout funds are induced to overpay for investments. In this case, an excellent private equity firm should refrain, as an increased competition tends to embitter covenant agreements and raise target shares prices[58]. Instead, experienced general partners will exit their investments at high market valuations and complete a few deals in these kinds of periods, trying to pick only the most convenient companies. However, even if the timing goes bad, sometimes general partners can make the right adjustments and achieve a high rate of return[59]. According to these assumptions, the historical correlation between the average level of debt issued in leveraged buyouts and private equity funds returns should be negative, as shown in Figure 14.

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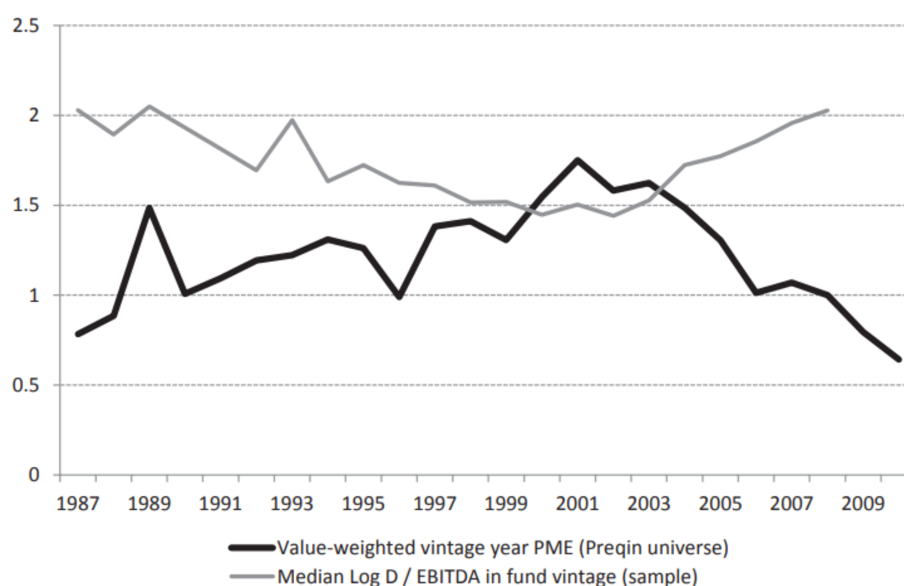
[54] Kaplan and Stein, 1993.
[55] This advantage also derives from the market timing ability of general partners.
[56] Baker and Wurgler, 2000.
[57] Grompers and Lerner, 2000.
[58] Ljungqvist, Richardson, & Wolfenzon, 2007.
[59] The most remarkable deal of this kind is the acquisition of Hilton Worldwide Holdings by Blackstone that is discussed at the end of chapter 4.

Figure 14: Buyout funds PME compared with the average amount of debt issued by buyout funds; the sample includes 1157 LBOs (1980 – 2009)



Source: Borrow Cheap, Buy High? The Determinants of Leverage and Pricing In Buyouts. Axelson, Jenkinson, Strömberg and Weisbach. (2013)

The optimal capital structure of a leveraged buyout strongly depends on the risk at which the investment will be exposed while placing the debt on the balance sheet of the target company. In order to determine the acceptable debt – to – equity ratio, many factors should be considered. At first, the amount of debt must be in line with target business operations. If running the business requires more financing, the management should consider that more debt may be needed.

Furthermore, the debt should not impair the possibility of reacting with flexibility to changed market conditions[60]. Exogenous shocks are particularly risky for companies with a high level of leverage. The target company should be able to adapt to new market conditions at least as fast as peers in case of industry disruption.

[60] Berck & DeMarzo, 2007.

So, the optimal capital structure depends on the characteristics of the target company and the conditions under which it operates[61]. The main advantages of using a high amount of debt are the tax shield and the reduction of agency costs. The main threats instead are external market shocks, sudden shortfalls in demand, and the loss of competitiveness[62]. A high leveraged environment may also escalate the cost of borrowing for the higher default risk and downgrading credit rating that implies unstable interest rates. It is also possible that the target company loses investment opportunities with positive NPVs. This happens if risk-averse management is discouraged from pursuing risky, but profitable, investments for the fact that there is a high amount of debt on the company balance sheet[63]. For this reason, the target firm may lose market shares and will probably show a decrease in net income when compared to peers[64].

The main result is that debt represents a benefit only if increased leverage moves the firm towards an optimal debt-to-equity ratio. In order to assess if the debt will have a positive or negative effect, the private equity firm should find out if the target firm has any unused debt capacity or excess capital[65].

2.3.2 Operational Drivers

Financial drivers were of paramount importance in the first wave of leveraged buyouts (1980 – 1988). Operational and strategic drivers have become the leading key to value generation in recent times. At first, operating improvements should be guided by people with previous experiences of the target industry[66]. General partners should organize a cross-utilization of different knowledges in order to set up the plan for organic growth.

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[61] Demodaran, 2001.
[62] Palepu, 1990.
[63] Stulz, 1990.
[64] Grant, 2011.
[65] Jensen et al. 2006.
[66] Kaplan and Strömberg, 2009.

Managers with financial education are as much important as people with operational and consulting backgrounds[67].
Operational improvements split into two macro classes: cost savings and asset utilization enhancements.

Cost savings consist of a reduction in capital expenditure and asset divestitures. Divestitures allow the target company to free up cash from curbed projects and redeploy it in investments with positive NPVs or productivity gains[68]. Several criticisms have been moved against private equity investors regarding the topic that cost-cutting leads to job losses. The operating assumptions of private equity firms, instead, suggest that reduced employment levels are peripheral. The empirical evidence suggests that job losses occur in distressed firms facing a reconstruction. These companies are not the ideal target of a leveraged buyout since private equity funds focus on firms with stable cash flows[69]. Some analyses have shown that in leveraged buyouts, the long-term employment level follows a J-curve pattern. Job losses occur in the first years of management, and significant growth of employment level characterizes the long term[70]. Kaplan (1989) finds out that in leveraged buyouts with high asset divestitures, the employment rose overall by 0.9%. In the end, private equity firms create value by disassembling bureaucratic structure that negatively affects the business, lining up an efficient organization and an optimal system of compensations.

[67] Hite and Vetsuypens, 1989.
[68] Wright, Thompson and Robbie, 1992.
[69] Hannus, 2015.
[70] Shapiro and Pham, 2008.

Figure 15: Employment levels in 26 US firms acquired by private equity firms (2002 – 2007) compared to the US labor market data

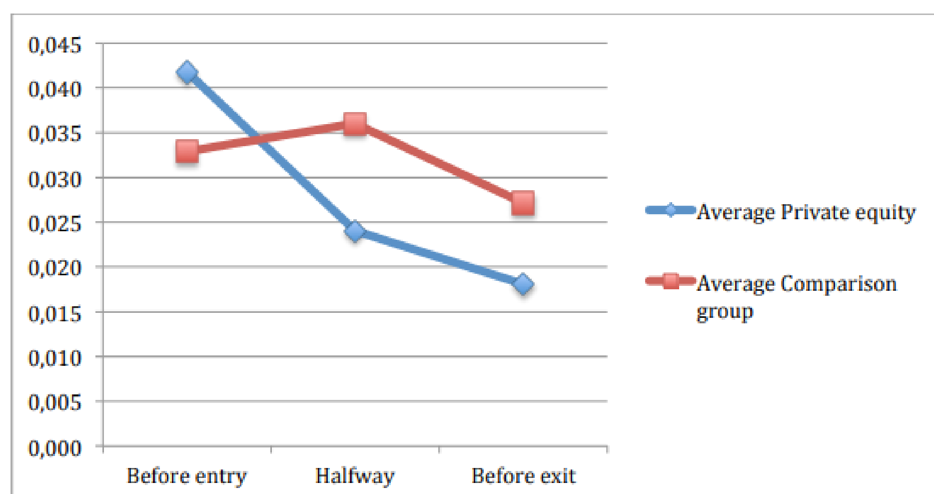
	Total	Manufacturing	Non-Manufacturing
Firms Purchased in Private Equity Deals			
Number of companies	26	7	19
Employment at time of acquisition	104,221	8,067	96,154
Employment Increases	13,861	115	13,746
Percentage Changes	+ 13.3%	+ 1.4%	+ 14.3%
Gains adjusted for economy-wide changes	+ 7.8%	+ 9.1%	+ 6.9%
All U.S. Firms			
Employment in 2002	122,388,000	15,273,000	107,115,000
Changes in employment in 2002-07	+ 6,699,000	- 1,183,000	+ 7,882,000
Percentage Change	+ 5.5%	-7.7%	+ 7.4%

Source: American Jobs and the Impact of Private Equity Transactions. Robert J. Shapiro and Nam D. Pham (2008)

Cost-cutting and asset disposal have the aim of improving the management of working capital which represents the most relevant operational driver. Through aggressive management of working capital, capital expenditure, and fixed assets, the private equity firm force the portfolio firm to be as efficient as possible[71].

[71] Gadiesh and MacArthur, 2008.

Figure 16: Capital expenditure in private equity-owned companies compared to other public and private companies



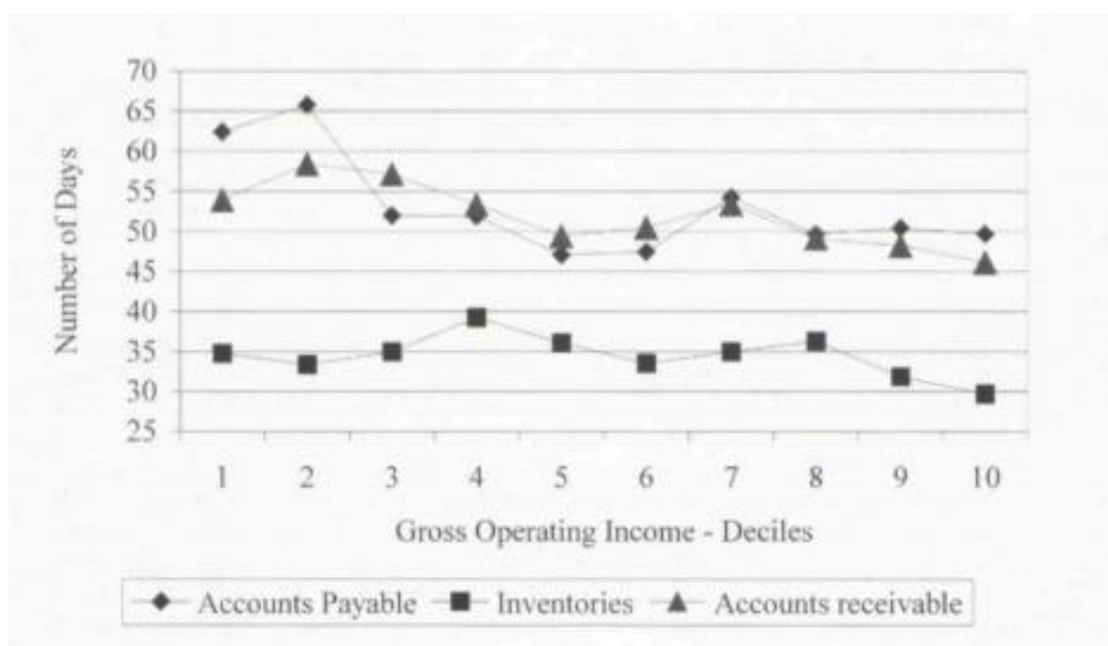
Source: The transformation of private equity. Johansson and Näsholm (2015)

To do this, smart private equity investors should look at the target balance sheet as a dynamic tool for growth. They should focus on EBITDA as much as on interest expenses, working capital (as a percent of sales) and capital expenditures. In a leveraged environment, the analysis of cash always has priority on the analysis of earnings. Since interest expenses are fixed and capital expenditures have growth and a maintenance component, in the near term, only working capital can be actively managed. Working capital is tied up in inventory, so general partners should be focused on reducing inventory levels in the post-buyout firm[72]. An efficient capital budgeting consists of minimizing account receivables and inventory while increasing the pace of collecting account payables. Account receivables can be optimized through the sale of receivables without recourse, the monetization of illiquid assets, the acceleration of the CCC or improvements of the metric Days Sales Outstanding. Accounts payable can be optimized by extending the payment terms to suppliers. This is made either using the company's power of negotiation or with specific payables collecting programs that give suppliers the possibility of an early payment at a competitive price.

[72] Easterwood et al., 1989.

While managing inventories, there are several factors to consider. A large inventory and friendly credit policies may increase sales and establish a good relationship with clients[73]. An aggressive credit policy tends to increase the risk of the firm but may also result in higher returns. A study from Aktas, Croci and Petmezas (2015) reports that the best way to manage working capital is to reduce the CCC. CCC is the time it takes for a company to convert its investments in inventory in cash resources.

Figure 17: Cash Conversion Cycle compared with Gross Operating Income of 1006 non-financial firms (1992-1996)



Source: Does Working Capital Management Affect the Profitability of Belgian Firms? Deloof (2003)

Eventually, once private equity firms want to improve working capital in a portfolio firm, the most traditional operation is to dispose of underperforming units. Indeed, these units may be more worth for competitors or other companies and could transform fixed assets in a source of cash.

[73] Deloof, 2003.

2.3.3 Strategic Drivers

During the Age of Mega Buyout, private equity firms adopted a new hands-on approach to build value in portfolio firms characterized by strategic improvements in the medium-long term. In this view, a new method of screening for target has arisen. Fund managers started to look at targets with possible strategic initiatives that could significantly increase the value of the company. The new way of screening a target was by conducting strategic due diligence, consisting of analysis and estimates carried out by the private equity firm itself.

A due diligence team conducts strategic due diligence. The primary targets of the due diligence team are collecting data on the target industry, identify the key drivers of demand, and establish how they might behave in the future. The scope of the strategic due diligence is to understand what the potential value of the target is and whether if in 3 to 5 years it could become appetible for a second buyer. So, the due diligence team must bring evidence to general partners that the future environmental and microeconomic changes will be in favor of the target business. Another method for collecting data is through interviews with representatives of the customer base, suppliers and competitors in order to dig out information about the strategies, operations, cost position, technological sophistication and financial situation of the whole industry. The result of strategic due diligence is an active plan composed of 3-5 key initiatives. Ideally, these initiatives will help the target to reach his full potential, making the firm more valuable than what the standard operations and management could do.

Even if strategic initiatives vary widely depending on the product, positioning, and competition, there are some common strategies widespread among private equity firms. The most common strategy is complexity reduction. In a pre-buyout situation, companies that show several diversified business units unrelated to the core business are more likely to be a good target for strategic improvement. Operating on different product lines may easily cause inefficiencies due to over-investment in mature

industries with little growth prospects[74]. The business of a target company might have been differentiated for wrong management choices. For instance, management might have purchased undervalued assets just because they were cheap and had considered it as a good investment opportunity, but without being specialized in the management of the purchased assets. The consideration that the core business has already hit his full potential might be wrong in many cases. In general, if the performances of the business are increasing, the company is more likely to be able to gain market leadership[75]. The focus on diversification may end up in the setup of underperforming business units which interferes with the target company's other operations. In these cases, private equity firms will find an investment opportunity and step in to sell off non-core assets, free up capital to invest in the core business and eventually make the portfolio company a market leader.

A reverse strategy is the buy and build. This strategy has the scope to expand the business through multiple horizontal acquisitions. At first, a "platform" firm is acquired in order to service as a starting base for further acquisitions ("add-ons"). The key ability that the private equity firm needs while conducting a buy and build strategy is to combine different companies into a single entity with a specific strategic line. The platform firm is chosen among mature companies with the greatest reputation in the industry, while add-ons are usually chosen considering their profitability. With a buy and build strategy, the portfolio firm can take advantage of market consolidation, which allows cost reductions through scale economies[76]. Buy and build strategies are particularly suitable in fragmented industries that do not have a clear market leader[77]. Another source of value comes with a more efficient allocation of assets between the platform and the add-ons, increasing the industry-adjusted utilization, measured as turnover per total assets. The add-ons can grow faster if the platform firm allows a shift of resources from firms with excess capacity to firms with too high asset utilization[78].

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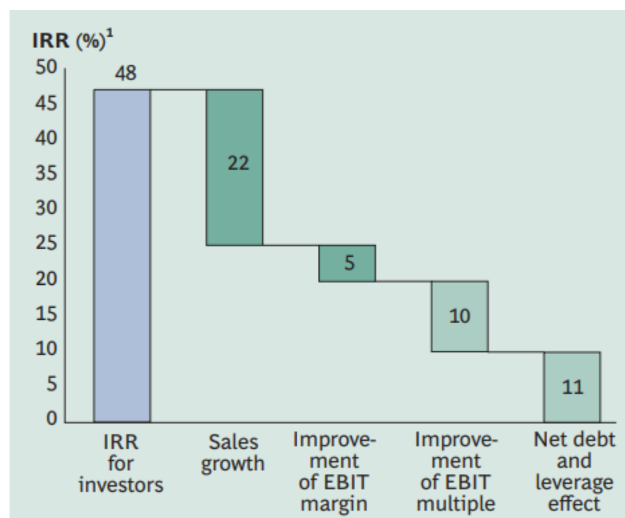
[74] Liebeskind, Wiersema, and Hansen, 1992.
[75] Critchlow and Koczkar, 2002.
[76] Baker, Gibbons, & Murphy, 1994.
[77] Smit, 2001.
[78] Borell and Heger, 2013.

One last value-generating strategy is the focus on sales growth and market expansion. This strategy is the most typical in private equity firms that want to exit their investments through IPOs.

Figure 18: Source of value on a sample of 32 European LBOs with an average exit IRR of 48%



Source: The Advantage of Persistence, How the Best Private Equity Firms "Beat the Fade." Meerkatt, Rose and Brigl (2008)

Successful growth moves consist of enhancing business key metrics like asset utilization, cash flow velocity, and customer performance[79]. In order to achieve growth, the most crucial point is the sourcing of companies with great expansion opportunities. Strategic due diligence is fundamental to find out micro-segments with high growth potential by looking at the customer base, regions, and products[80]. Finally, a successful growth strategy could be a horizontal integration of the value chain.

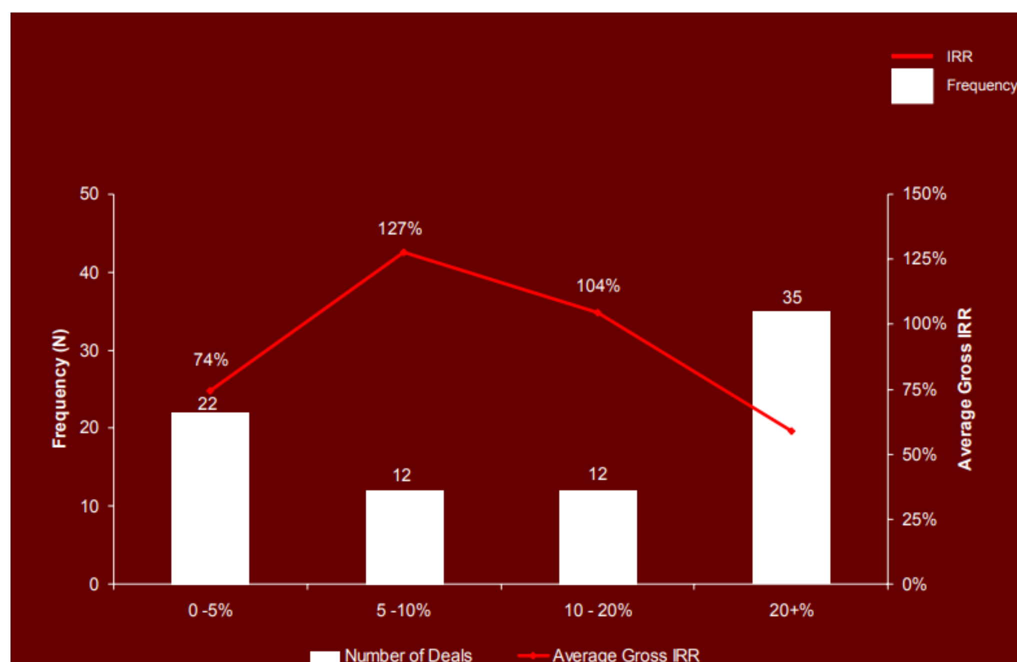
[79] McGrath and MacMillan, 2005.
[80] Baghai, Smit, & Viguerie, 2009.

2.4 INDIRECT DRIVERS

2.4.1 Governance Drivers

The first relevant consideration about governance drivers is that the mitigation of agency conflicts through the alignment of interests between management and ownership is a source of value. In this sense, a measure of quality for general partners relies on their ability to build up an efficient incentive system. The right amount of incentives should be moderate enough to motivate management to enhance the value of their equity stakes as a result of their work. For this reason, the relation between leveraged buyouts IRR and management-owned equity stakes should follow an inverse U-shaped pattern.

Figure 19: Management equity ownership compared to Gross IRRs of 85 European leveraged buyouts



Source: Truths and Myths about Determinants of Buyout Performance. Kreuterg, Gottschalg, and Zollol. (2005)

In Figure 19, for the relative sample, the higher average return of 127% is achieved by the portfolio firms in which management has ownership of 5 – 10%. In this sense, when

a target company has an inefficient ownership balance, private equity firms can achieve value generation setting up the right incentive system. However, not always an efficient incentive system consists of providing management with higher equity ownership. The more significant is the equity stake owned by management, the more they are exposed to the risks of the investment. As a consequence, risk-averse managers could be discouraged from undertaking profitable initiatives[81].
In private equity portfolio companies, the risk-aversion of management is enhanced by the fact that equity shares are illiquid and stock options cannot be exercised until the deal is exited. This fact increases the management commitments to the target firm.

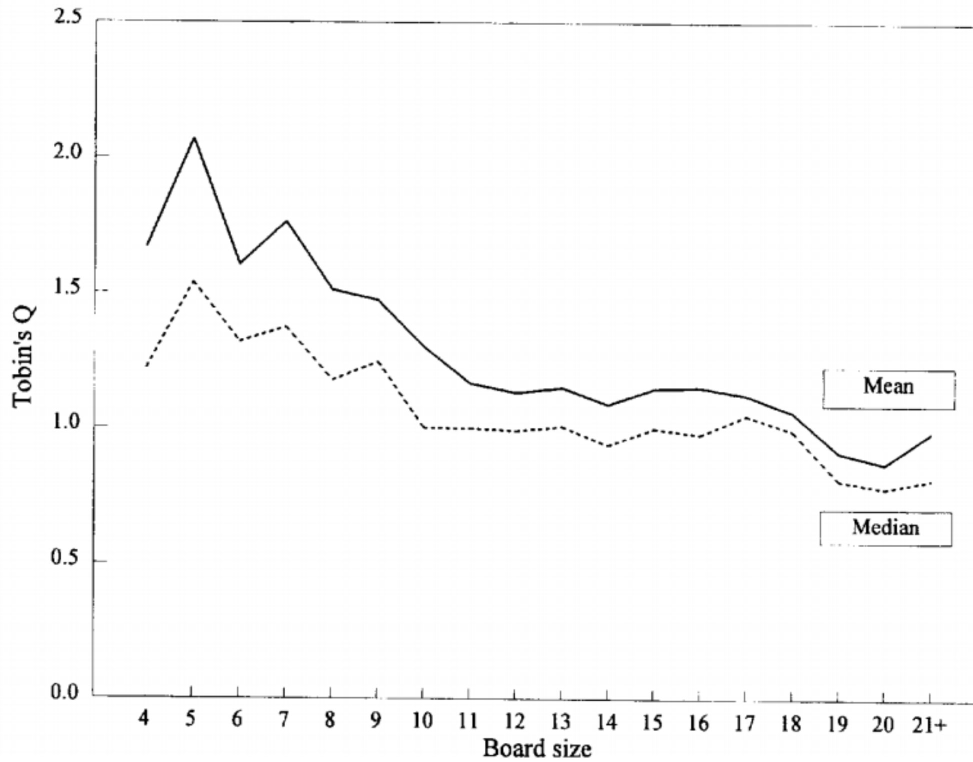
A valuable source of value generation is the use of pay-to-performance systems in employee contracts which leads to increases in salaries and productivity.
Incentives could also be structured in the form of performance ratchets. Performance ratchets are agreements between the management of the portfolio firm and the private equity fund that allows managers to increase their equity ownership if they achieve specific performances.

Another governance enhancement is the restructuring of the board of directors. The board of directors should be composed of 5 – 7 members, out of which one or two should be general partners of the private equity firm[82]. Several studies report an inverse dependence between the company performances and the number of members on the board of directors[83]. In these cases, a profitable private equity initiative relies on the composition of a new board with reduced size. The operating model of the boards under private equity ownership tends to be different from the boards of public companies. In particular, the board of directors of private equity portfolio firms tries to achieve value creation instead of short-term performances. These boards are also gathered more often, have a faster decision-making system and more outside directors[84]. Moreover, while conglomerates use internal controls to monitor the operations of the company, private

[81] Demsetz, 1983.
[82] Hannus, 2015.
[83] Yermack, 1996.
[84] Acharya et al. 2008; Lowenstein, 1985; Millson & Ward, 2005.

equity portfolio companies use market forces as the main components of the management control system[85]. They also replace underperforming management more swiftly[86].

Figure 20: Mean and Median of Tobin`s Q[87] for a sample of 452 firms (1984 – 1991) with different board sizes



Source: Higher Market Valuation Of Companies With A Small Board Of Directors. Yermack. (1996)

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[85] Baker, G. P., & Montgomery, C. 1994.
[86] Jensen 1989.
[87] Tobin`s Q is estimated at the end of each fiscal year as Market value of assets over Replacement cost of assets

2.4.2 Cultural Drivers

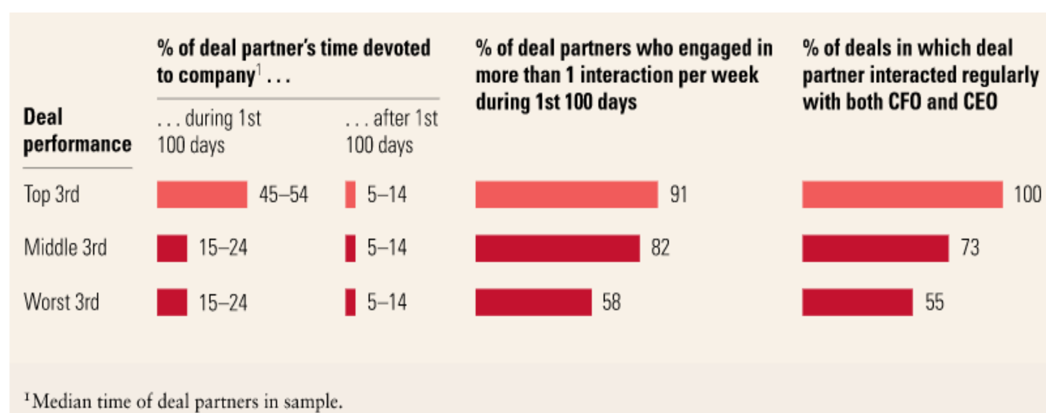
Cultural drivers refer to enhancements that change the approach of the overall company to business challenges. Without going too deep into this philosophical concept, a good definition of corporate culture is: “the pattern of shared beliefs and values that give members of an institution meaning and provide them with the rules of behavior in their organization”[88]. Tangible results due to cultural drivers are harder to measure than the other drivers. A private equity firm will try to achieve productivity improvements by spreading result-oriented behaviors among management and employees.

The set-up of an efficient system of monitoring and mentoring in the target company is the first crucial step. The most efficient and profitable approach is to adopt an active ownership model with direct communications between general partners and the managers of the portfolio company. The main advantage of an efficient flow of information from management to general partners is a lower level of inefficient bureaucracy[89]. Successful private equity firms will put their efforts in setting up a monitoring system at the beginning of the holding period when the strategic plan needs to be implemented. At this stage, general partners should spend much time with the management team in order to properly evaluate them, define responsibilities, and establish healthy relationships.

Early success is fundamental in leveraged buyouts. A brilliant beginning helps to develop the blueprint of subsequent success, and it raises the belief, among all participants, that the deal will work in the long term.

[88] Davis, 1984.
[89] Kester and Leuhrman, 1995.

Figure 21: Degrees of activism compared with deal performances of 38 LBOs



Source: Interviews with deal partners and CEOs of exited investments; McKinsey analysis (2005)

Between these two crucial participants, there should be as much transparency as possible. Regularly, general partners should: access management accounts, review sales/margins, and align with the management[90].

There are three essential features that a private equity monitoring system should always include. These are the use of subscription agreements, the control through an effective audit system, and the presence of non-executive directors[91].
Several positive effects may also derive from improved relations among employees resulting from investments in human resources. The scope of these investments is to enhance employees' trust and commitments to the management and lead them to work more efficiently. Human resources management could be improved through the allocation of sources devoted to solving human resources issues, enhance the training and development of employees and increase their payments and responsibility[92]. The implementation of new HR practices may also be intended as a signal from managers to employees of the sustainability of the organization.

[90] Millson and Ward, 2005.
[91] Bygrave et al. 1999.
[92] Bruining et al., 2004.

Largest private equity firms also tend to set more ambitious objectives that spur the management to work efficiently. One last factor to consider is the use of few and simple metrics as financial indicators to track performances[93].

2.4.3 Human Drivers

A successful private equity firm knows well how necessary human capital in such a risky business is. Setting up an excellent human capital management means to create the right mixture of professional skills in the portfolio company. In general, a successful LBO is driven by a high-quality combination of industry expertise, financial expertise, management talents, and consulting expertise. The perfect balance is not a standard skills-set, but it depends on the characteristics of the target firm and the strategies that the private equity firm intends to run across. Private equity firms are well known for selecting their managers and employees accurately. If they need to hire someone with experience in the target industry, they usually use their extensive network of contact to find people who have the right track record. The attitude they look for in candidates is hungriness for success and willing to put their financial upside at risk[94]. Private equity firms are very concerned about team quality, which is a critical lever for driving operating results. A proven team builder with the ability to hit ambitious goals is the candidate who has more chances to become an excellent deal maker.

Private equity firms attract a disproportionate amount of available talent, who come from lower-paying sectors and are looking for opportunities that lie above the risk/reward line. They collect market data on what the labor market is offering, which are the alternative skills that people have and what is their market value. They usually hire young people at the beginning of their careers who have a more flexible mindset. The ideal candidate is an investment banking analyst with relevant deals on his resume and proven leadership skills.

[93] I.e., cash flow ratios and industry indicators.
[94] Gadiesh and MacArthur, 2008.

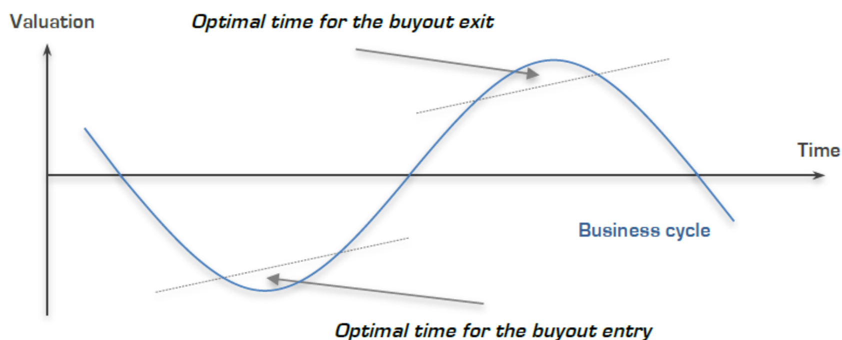
2.5 VALUE CAPTURE

2.5.1 Timing Drivers

Since private equity firms look at the returns in the long term, the temporal collocation of the deal is of paramount importance. While assessing the timing of an LBO, general partners look at: the stage of the business cycle (recession or expansion), the actual and future conditions of the target industry, the potential holding period and the best moments to act successful business initiatives.

There are many shreds of evidence that the business cycle affects LBOs performance, especially for those funds that intend to set up growth strategies. LBOs returns are driven by high GDP growth rates, high equity returns, low credit spreads, and low corporate bond yields[95]. The entry timing should be established by looking at the current stock valuations, and avoiding overinvestments when valuations are too high. This theory is coherent with the empirical evidence that leveraged buyouts tend to present lower rates of return when volumes are high. These features characterized those years with expensive debt and high valuation multiples due to the saturation of the private equity market. Indeed, funds raised in boom years tend to perform poorly than the funds raised during burst years, even if they usually raise more capital[96].

Figure 22: Optimal market timing for leveraged buyouts



Source: Value Creation in Private Equity: A Case Study of Outperforming Buyouts in the Nordic Countries. Hannus. (2015)

[95] Phallipou and Zollo, 2005.
[96] Kaplan and Schoar, 2003.

Timing skills are particularly crucial for funds that invest in cyclical industries like chemicals, energy, and telecommunications[97]. However, the ordinary private equity firm which invests in mature companies with stable cash flows is less affected by the business cycle.

The holding period choice, instead, is a relevant decision for all funds. The average holding period varies depending on the different buyout waves. The overall average is about 6-9 years. However, it has been reported[98] that there is a negative correlation between leveraged buyout returns and holding periods. The so-called quick flips show the highest returns. Quick flips are deals exited before two years of holding period. In the paper of De-Silanes, 903 quick flips over a sample of 7453 investments presented the highest average IRR (85%), while 1347 investments with a holding period higher of 6 years presented the lowest average IRR (8%). This evidence suggests that intensive financial and operational therapies carried out in few years are an authoritative source of value. This boost may also come from the market itself, which looks positively at quick and successful deals.

2.5.2 Multiple arbitrage

The most astute private equity funds can achieve value generation through multiple arbitrage independently from any financial engineering or operational improvements. Value capture is linked to the ability of the private equity firm to find the arbitrage opportunity derived from market inefficiencies. At some point in time, a firm is valued differently from different buyers, allowing a buy-sell spread that can easily be extracted through a leveraged buyout. The reference multiple in most cases is the EBITDA/ Enterprise Value, while sometimes also EBIT/Enterprise Value and Sales/Enterprise Value are considered.

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[97] Cornelius et al., 2009.

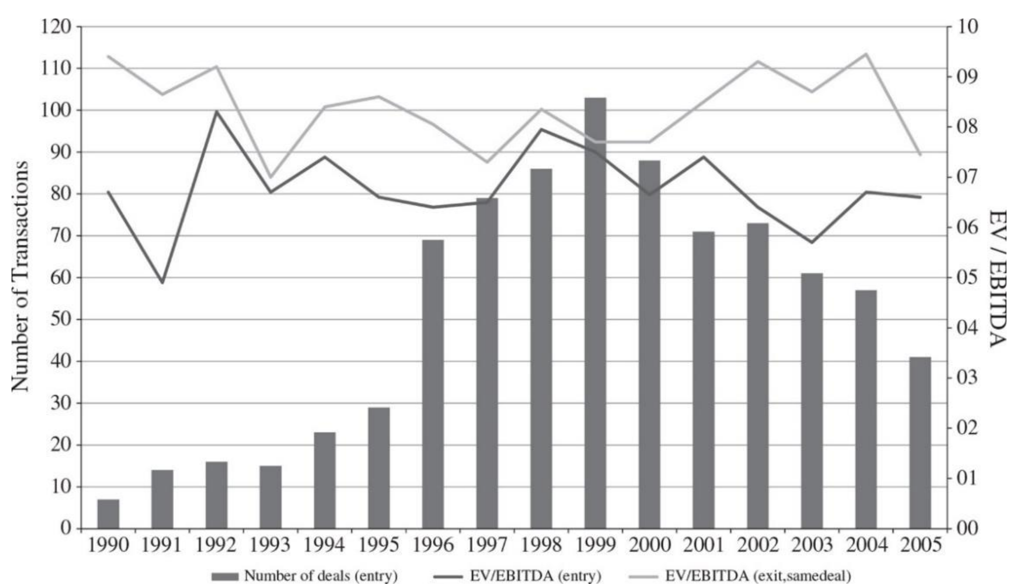
[98] De-Silanes et al. 2011.

Many different reasons could explain arbitrage opportunities:

- Comparable firms of different size are usually valued at different multiples (the larger has a higher valuation)
- Public companies have higher multiples than private companies
- Growth industries present higher multiples than mature industries, even if the level of profitability is the same.
- Two companies in the same industry and similar size could be valued differently in different countries
- Multiples misalignments could be caused by the business cycle

Among those arbitrage opportunities, the ones that create more value for private equity firms are the ones generated by growth industries or business cycles[99]. Multiple arbitrage, in this case, could be a good explanation of the success of quick flips. Moreover, some studies report that multiple expansion is more effective for deals entered during times of economic downturn[100].

Figure 23: Evolution of the gap between exit and entry multiples in a sample of 832 leveraged buyout (1990 – 2005)



Source: Value creation and pricing in buyouts: Empirical evidence from Europe and North America. Achleitner, Braun and Angel. (2011)

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99 Hannus, 2015.

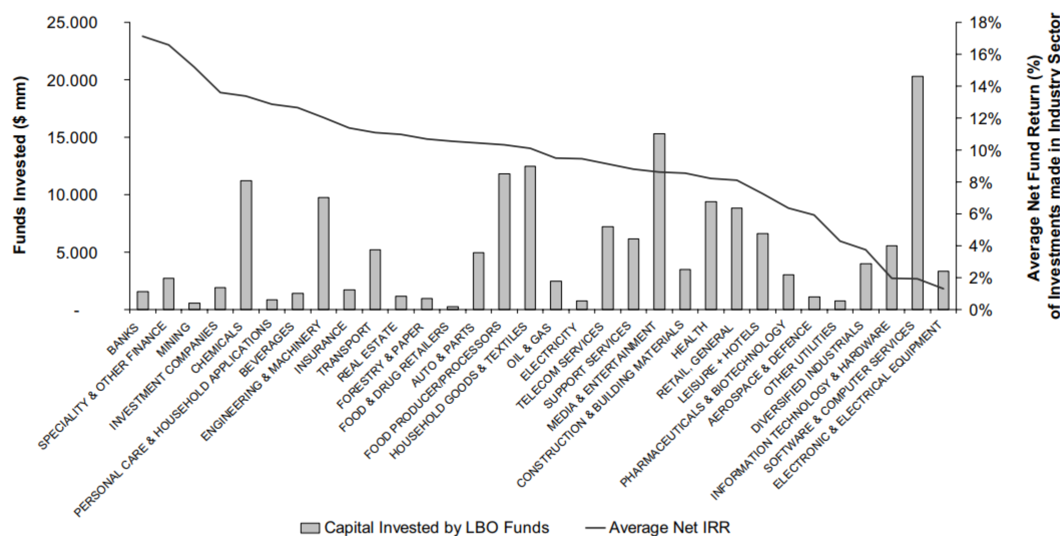
100 Achleitner, A.–K., Braun, R., & Engel, 2011.

Industry growth opportunities are achieved through a deep analysis of market. This analysis allows the buyer to have a better view of industry development than the seller. A standard method for increasing the exit multiple is through a buy and build strategy. Market consolidation may help a growth firm to take advantage of scale economies and to gain market power.

2.5.3 Screening drivers

In a leveraged buyout, the identification of the right target can play an essential role in the success of the deal. The empirical evidence suggests that private equity targets are particularly diversified[101]. However, some industries have been more targeted and have generated higher returns than others.

Figure 24: Total private equity investments by industries, compared to the average net IRR of 800 US buyout funds (1980 – 2003)



Source: Value Creation in Leveraged Buyout. Loos. (2006)

In figure 22, for the reference period, industries that have generated the highest returns were banks and financial services even if deal volumes have not been particularly high. Many advantages could have driven the success of LBOs in these sectors. These are an

[101] Opler and Titman, 1993.

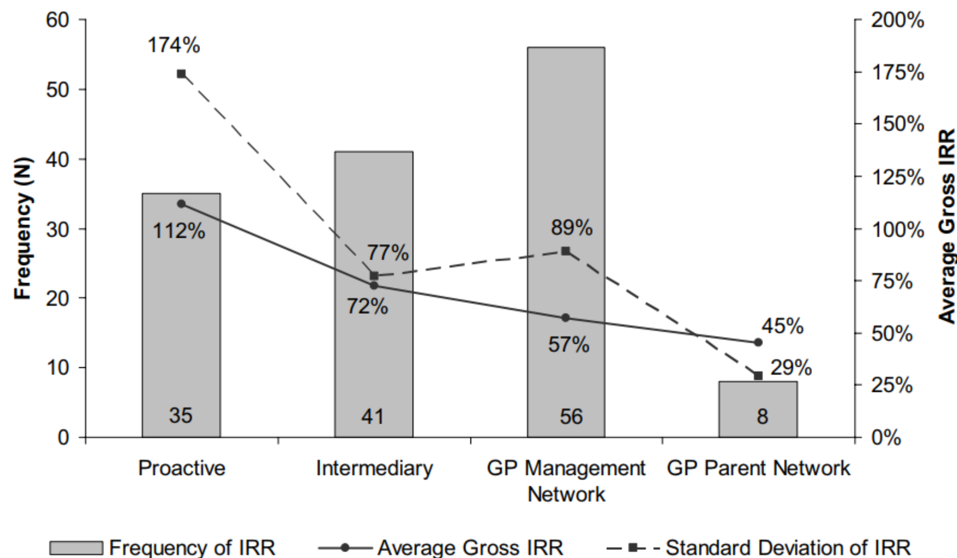
extended potential customer base that allows high results from improvements, the fact that it is a very flexible industry that can offer many profitable initiatives, healthy margins, and high profitability ratios. Among the industries with higher returns, the most targeted were traditional industries like engineering and machinery, chemicals, mining, textile, and paper. Therefore, these sectors tend to produce steady and predictable cash flows. Moreover, they also offer a massive asset base that can be used as collateral for loans and guarantees significant cost-cutting opportunities like divestible assets and units.
The low performance of the information technology industries could be explained by the high competition with venture capital funds, which are highly focused on this sector, and by the internet bubble burst of 2001. The real estate industry has been highly targeted in the late 2000s, as it can be deducted by the comparison of Figure 22 and Figure 2.

Another factor that private equity firms should consider in the screening process is the source of the deal. Target companies can be identified through:

- proactive analysis conducted directly by the private equity fund, which approaches the target company if there are value creation opportunities
- the advantage of general partners network of contacts
- the advantage of general partners internal networks[102]
- financial intermediaries

[102] I.e., if the fund belongs to a larger financial institution may receive internal investment prospects.

Figure 25: Average Gross IRR by different deal sources, sample of 140 leveraged buyouts (1980 – 2003)



Source: Value Creation in Leveraged Buyout. Loos. (2006)

While the source with the highest utilization is the general partners' network, the one that present the highest average IRR is a proactive approach[103]. A possible explanation of this result is that a proactive approach allows general partners to identify a deal that has not been recognized by other bidders already[104]. Indeed, deals discovered through the general partners' network may lead to less analysis of value potentials if general partners have a deep trust in their contacts. Consequently, the fund may pick up a non-convenient deal.

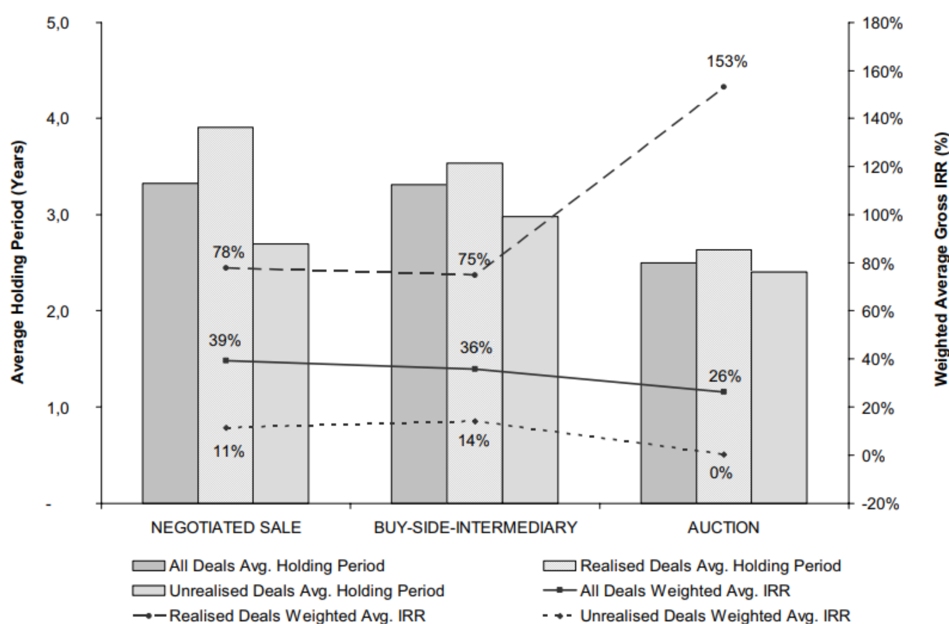
2.5.4 Negotiation drivers

A successful deal comes up after an accurate valuation of the target company. The most used method by private equity firms is to look at peer valuation multiples and similar

[103] Which also presents the highest volatility.
[104] Fox and Marcus, 1992.

transactions[105]. The possible entry modes are through auctions, direct negotiations, and financial advisory.

Figure 26: IRR by entry modes, sample of 350 deals (1973-2003)



Source: Value Creation in Leveraged Buyout. Loos. (2006)

The reason why auctioned deals present higher returns than others may be attributed to the fact that in general, only most attracting deals are entered through an auction. On average, auctioned deals are also the largest[106].

At this stage, independently of the entry mode, an important role is played by financial advisors. The choice of the advisor is critical for the success of the deal and the post-transaction performance. Buyout firms with the most robust relations with their advisors have more chances to strike successful deals[107]. The most reputable top-tier investment banks dominate the M&A advisory service field. However, it seems that the

[105] Hoffman, 2008.
[106] Loos, 2006.
[107] Wetzer and Morkötter, 2017.

reputation of the buy-side advisor does not affect deal prices, and so does not add benefits to the buyer[108].

Moreover, Gobulov et al. (2011) report that reputable advisors may deliver favorable deal prices for the bidder only in large public transactions. While assessing whether financial advisors can be the proponents of value capture or not, both buy-side and-sell side advisors must be considered. Those two deal participants have different interests since. Buy-side advisors only get paid if the deal is concluded. Therefore, for one seller, there are many potential buyers. In most cases, sell-side advisors have a very high chance to be paid since they do not face any competition. Advisors on the buy-side, instead, have a much higher interest in closing the deal. Top tier private equity firms may obtain a favorable purchase price if they have a strong relationship with the advisor on the sell-side. They have an essential advantage if the target company advisors have previously provided advisory services to the private equity firm on several deals.

Two explanatory facts could be:

1. The presence of conflicts of interests if the sell-side advisor intends to keep a good relationship with the private equity firm for future business
2. Sell-side advisors have more trust in clients with whom they have worked well in the past and know that they will close the transaction quickly

These evidences remark the importance of the contact network for a private equity firm. A buyout firm has more chances to obtain a reduction in transaction prices if it has a good reputation among investment banks.

While assessing the exit mode, a private equity firm could evaluate a public listing, a trade sale, a secondary buyout, or a recapitalization. Among private equity firms, IPOs exits are a privilege that can be used only by the top funds, since it is a very long and costly process. Chapman and Klein (2009) report that IPOs have a higher average IRR[109]. Deals exited through an IPO are also the largest transactions and the least

[108] McLaughin, 1990.
[109] On a sample of 288 deals IPOs had an average IRR of 101%, trade sales 54,2%, secondary buyouts 44,2% and recapitalizations 28,2%.

leveraged. However, over 288 deals only 37 were unloaded through an IPO, while the majority (123) was unloaded through a trade sale.

CHAPTER 3

Comparative analysis of the largest private equity firms

3.1 SAMPLE PRESENTATION

In 2014 there were 3530 active private equity firms in the world[110]. Many of these are specialized also in other fields like financial services, hedge funds, and credit solutions. This chapter consists of an analysis of the top tier private equity firms, chosen by the relevance of their transactions, the size of their funds, and their investment criteria. Therefore, the sample is composed of four public investment firms: The Blackstone Group, KKR & Co., The Carlyle Group, and Apollo Global Management. For each firm, the analysis includes data on investment by industry, investment by region, most relevant transactions, and competitive advantages. While looking at investments by industry type, it is useful to consider the average return of private equity investments by sectors and regions.

Figure 27: Average Return by industry for 800 buyout funds (1980 – 2003)

Industry	Average Return
Communication Services	9,6%
Consumer Discretionary	10,2%
Consumer Staples	11,7%
Energy	9,9%
Financials	16,6%
Health Care	7,75%
Industrials	13,9%
Information Technology	1,9%
Materials	9,9%
Real Estate	11,8%
Utilities	4,4%

Source: Elaboration of data from Value Creation in Leveraged Buyout (Loos, 2006)

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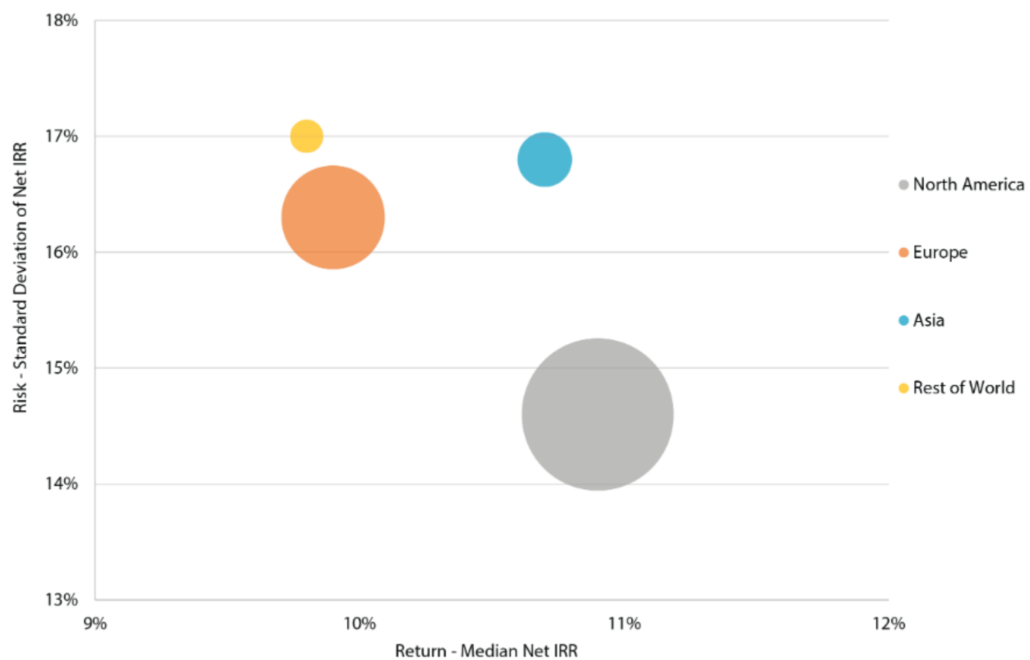
[110] Pitchbook, 2015.

Figure 28: Average Return of 2600 PE funds by geographic focus (2003 – 2013)



Source: Preqin Private Equity Online

The next section consists of a comparison of the 4 sample firms by:

- net income
- net income margin
- assets under management
- revenues items
- risk-adjusted returns

Assets under management represents the total market value of the investments that the private equity firms manage.

The risk-adjusted return corresponds to monthly market return over monthly volatility.

In the next sections, private equity investments and real estate investments are distinguished, since the sample firms have different business lines for real estate and private equity. However, the deals maintain the same typical characteristics of leveraged buyouts.

3.1.1 The Blackstone Group

Blackstone was founded in 1985 by two ex-managing directors of Lehman Brothers: Steven Schwarzman as CEO and Peter Peterson as chairman. The funding amount was $400.000, half from each partner. Their initial plan was to set up a hybrid business composed of an M&A boutique and a buyout shop. Today, Blackstone is the largest private equity firm in the world, with $472,2 billion of Total AUM on 31st December 2018[111].

Blackstone has traditionally operated through its investment vehicles, focused on four main business units: Real Estate, Private Equity, Hedge Fund Solutions, and Credit. In its first years, Blackstone's success was driven by the M&A advisory unit, which generated stable profits that were fundamental for setting-up the private equity funds. This unit became less relevant due to the success of other business lines and was eventually spun off in October 2015. Blackstone has historically operated in different business lines as joint ventures. The most relevant has been the real estate business unit and the bond investment business. This last unit was spun off in 1994 with the name BlackRock Inc. that today is the largest asset management firm in the world with $6000 billion of AUM.

On June 25th, 2007, Blackstone went public with the biggest IPO in the recent five years of the United States history[112]. Steven Schwarzman agreed with Citi bankers and Morgan Stanley bankers a share price of 31$. The demand was so strong that the next day, the share price jumped to 38$.

The main advantages of Blackstone are:

- A high-quality track-record
- A well-diversified business in terms of business lines, target industries, and geographic scale
- An active approach to investment opportunities
- Strong relationships with clients and suppliers

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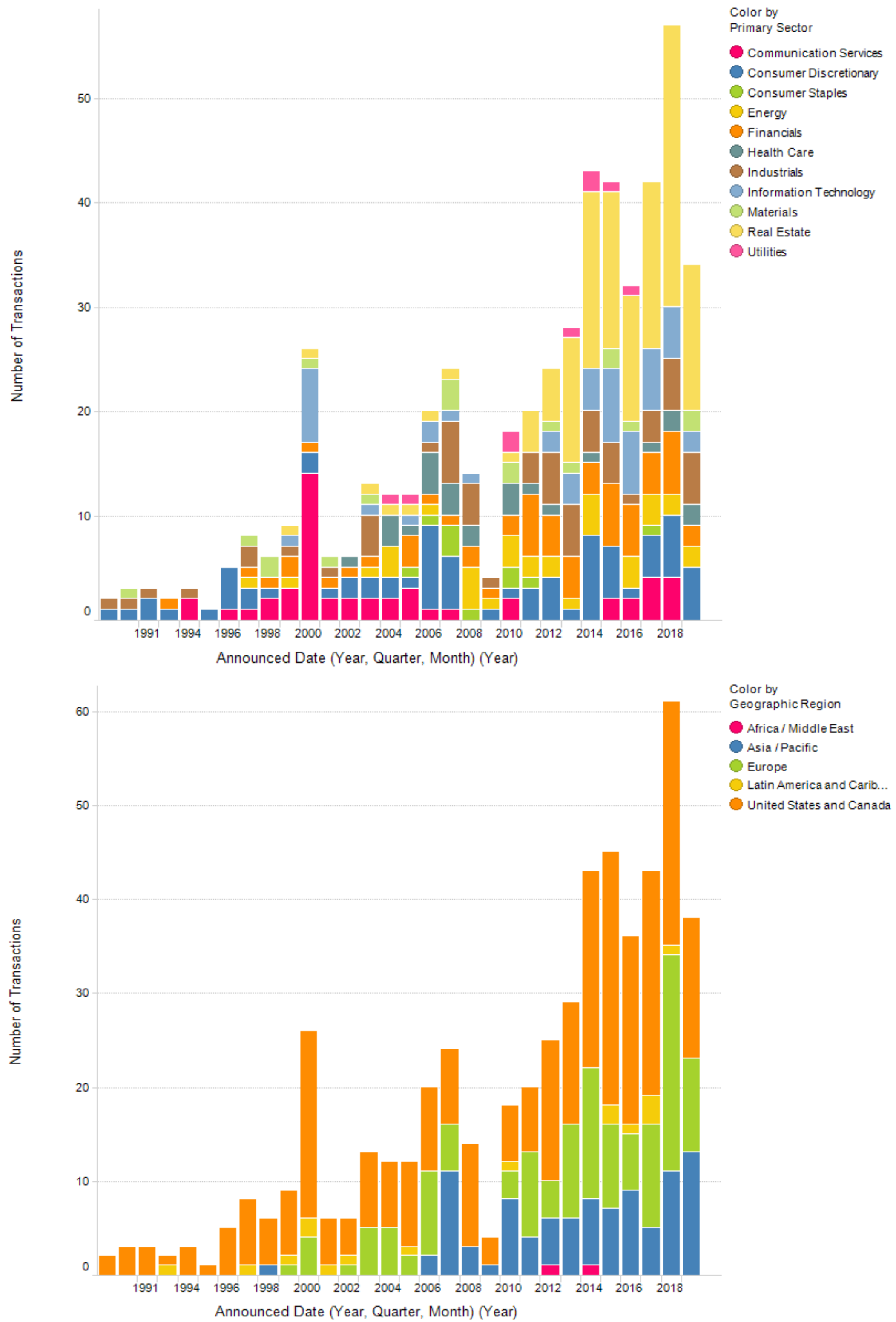
[111] The Blackstone Group L.P. Form 10-K, 2018.
[112] Carey and Morris, 2012.

In the real estate industry, the most important deals of Blackstone are the leveraged buyouts of Equity Office Proprieties Trust, Hilton Worldwide Holdings Inc., and Brixmor Property Group Inc. Some important transactions in other industries have been:

- Financial services → the $20,0 billion acquisition of the 55% stake in Refinitiv in 2018
- Information Technology → the $11 billion acquisition of The Ultimate Software Group Inc. in 2019
- Auto Parts and Equipment → the acquisition of ZF TRW Automotive Holdings in 2003 for $8,5 billion
- Industrials → the $7.3 billion acquisition of Gates Industrial Corporation plc in 2014

The investment process of Blackstone follows a rigorous structure. The selection, valuation, and due diligence of investments are carried out by the deal team. The due diligence does not follow any standard rules. Instead, it consists of a program that is appropriated for the deal characteristics. Once the deal team has completed the prospect, the transaction goes under two reviews. At first, the deal must pass the check of the review committee, which is composed of several managing directors of the relative business unit. If the transaction gets the approval of the review committee, then it goes under the review of the investment committee, which is responsible for giving final approval. In this phase, the investment committee considers the quality of the business targeted and its management team, the economic environment with its macro trends, the potential exit strategy, the holding period, the capital structure and the expected return under different scenarios.

Figure 29: Blackstone investments by sector and geographic region (1989 – 2019)



Source: Capital IQ

3.1.2 KKR & Co.

KKR & Co. was founded in 1976 and is considered the first relevant buyout firm of all time. Throughout history, KKR has always been a leader of the private equity market, having completed more than 350 investments with a total value of approximately $600 billion as of December 31st, 2018[113]. KKR was involved in the most relevant leveraged buyouts of private equity history, like the already mentioned acquisition of RJR Nabisco.

KKR operates through 4 main business lines. The most important is Private Markets that manage private equity funds and investments in real assets[114]. The second unit is Public Markets which manage leveraged credit strategies, alternative credit strategies, and hedge fund platforms. KKR also has a Capital markets unit that offers several financial services and investment opportunities to KKR clients. At last, Principal Activities manage the firm`s assets.

Nowadays, KKR has developed the following industry benefits:

- The reputation of driving growth and value creation in portfolio companies
- A worldwide network that allows the firm so source deals, raise capital and carry out capital markets activities
- A well-developed investments approach thanks to many years of investment experience

Among all KKR investments, the largest deals have been:

- Health care → the $33,8 billion acquisition of HCA Healthcare Inc in 2006
- Information Technology → the $26,3 billion acquisition of First Data Corporation in 2007
- Tobacco → the acquisition of RJR Nabisco Inc for $24,9 billion in 1988
- Specialty Stores → the $8,4 billion acquisition of Toys “R” Us Inc in 2005

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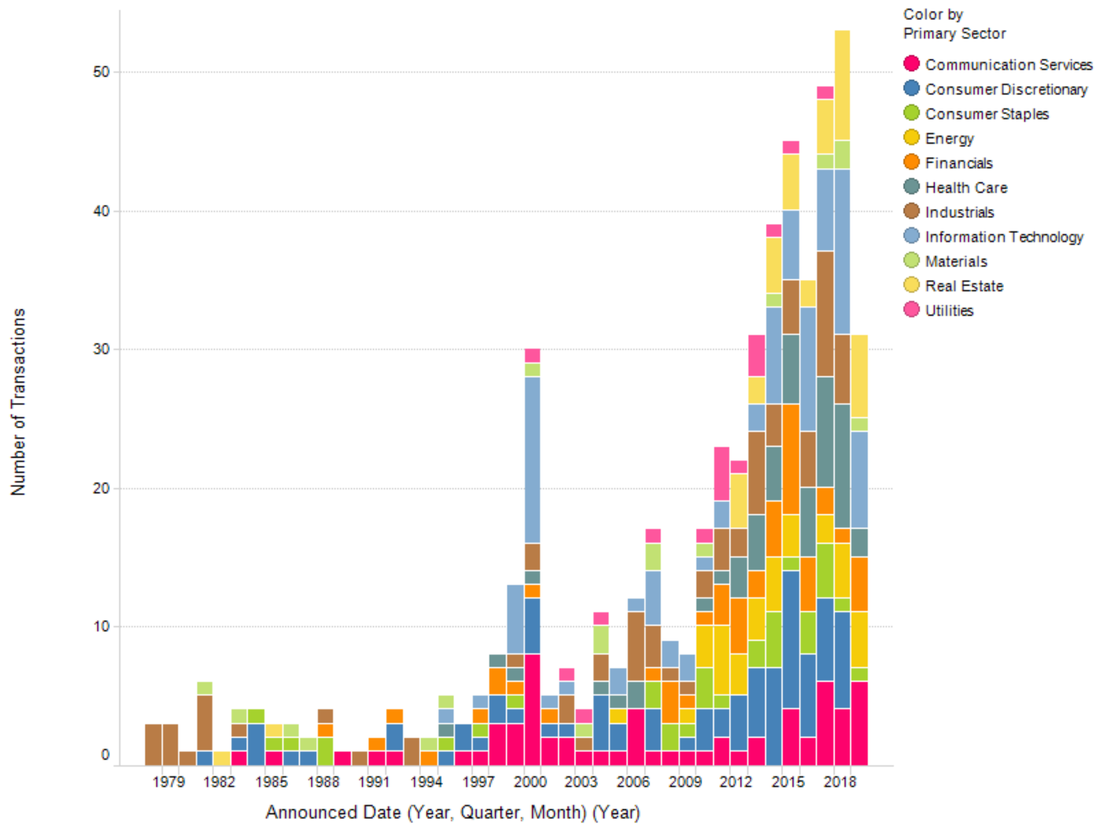
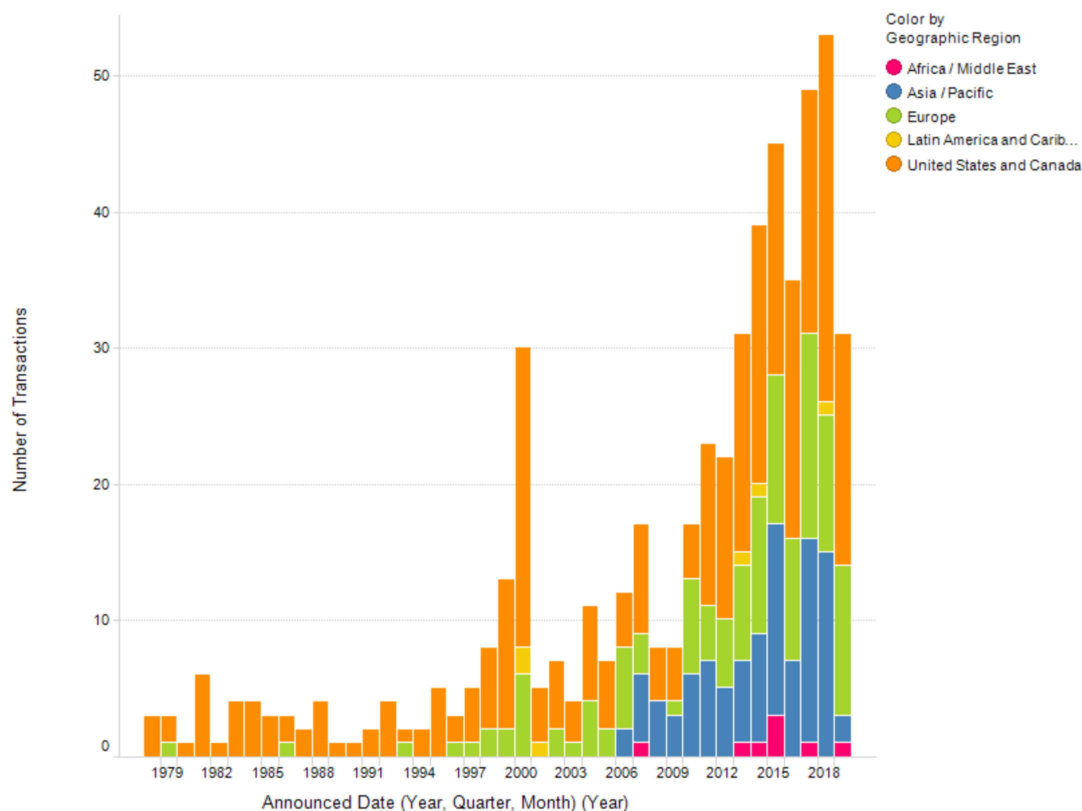
[113] KKR & Co. Inc Form 10-K, 2018.

[114] Energy, infrastructure, and real estate.

The investment process of KKR is organized differently from the investment process of Blackstone. Researches are conducted by the industry-specific teams that examine a list of potential portfolio firms and set a due diligence process for investments that are worthy of consideration. The investment professionals have a specific mandate that includes visits to plants and facilities, and meetings with the target company's employees, managers, and stakeholders. When the investment framework is ready, the proposal needs to get the approval of the regional investment committee before the execution.

Figure 30: KKR investments by sector and geographic region (1978 – 2019)





Source: Capital IQ

3.1.3 The Carlyle Group

Founded in 1987 in Washington D.C., The Carlyle Group is one of the largest and most diversified investment firm in the world. Its founders were David Rubenstein, a lawyer who was a member of Jimmy Carter administration, and William Conway, the CFO of MCI Communications. In the beginning, Carlyle focused its investments in the defense and aerospace industries of Washington. Therefore, its early success was favored by the knowledge of the government's ins and outs. The extensive network of contacts of the company among government officials brought in total $14 billion of deals from the Pentagon from 1998 to 2003[115]. The investment strategy in the defense industry was unique for a private equity firm. Carlyle acquired undervalued target companies, revitalized the business thanks to Pentagon contracts and eventually exited at enormous profits. The transaction of the defense industry that generated the highest return has

[115] Center of Public Integrity, 2004.

been the acquisition of GDE Systems in 1992 sold four years later at eight times the purchase value. Also, the acquisition of United Defense Industry in 1997 was a successful deal. United Defense was sold in 2001 for a profit of approximately $1 billion. Carlyle has been for long criticized for hiring members of the government. The most controversial conflict of interest was when George H.W. Bush joined the company as an adviser while his son became president of the US and started to increase defense spending. However, after the first 2000s, Carlyle business became more diversified and worldwide, and it did not invest any more in defense.

The main business lines of Carlyle are the Corporate Private Equity and Real Assets segments. There are also a Global Credit and an Investment Solutions unit that extends the set of products that Carlyle offers to its clients. Carlyle has historically achieved the most significant number of transactions compared to its peers, even if on average, its transaction sizes are smaller. In 2007 Carlyle completed 88 transactions, a historical high for the private equity industry.

The competitive advantages of Carlyle consist of:

- A unified culture focused on investment quality and business expansion
- A significant amount of resources allocated to hiring and retaining investment professionals
- Active approach to alignments with stakeholders' interest

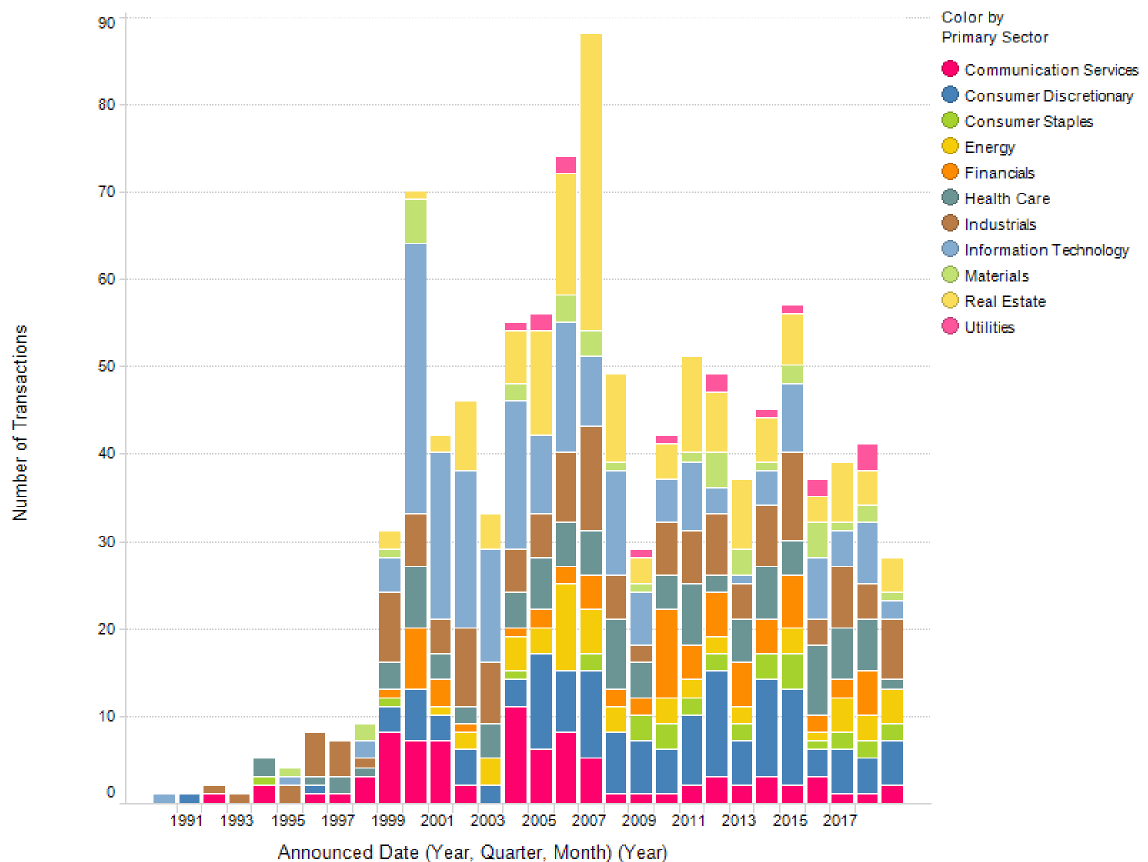
The most remarkable transactions carried out by Carlyle are:

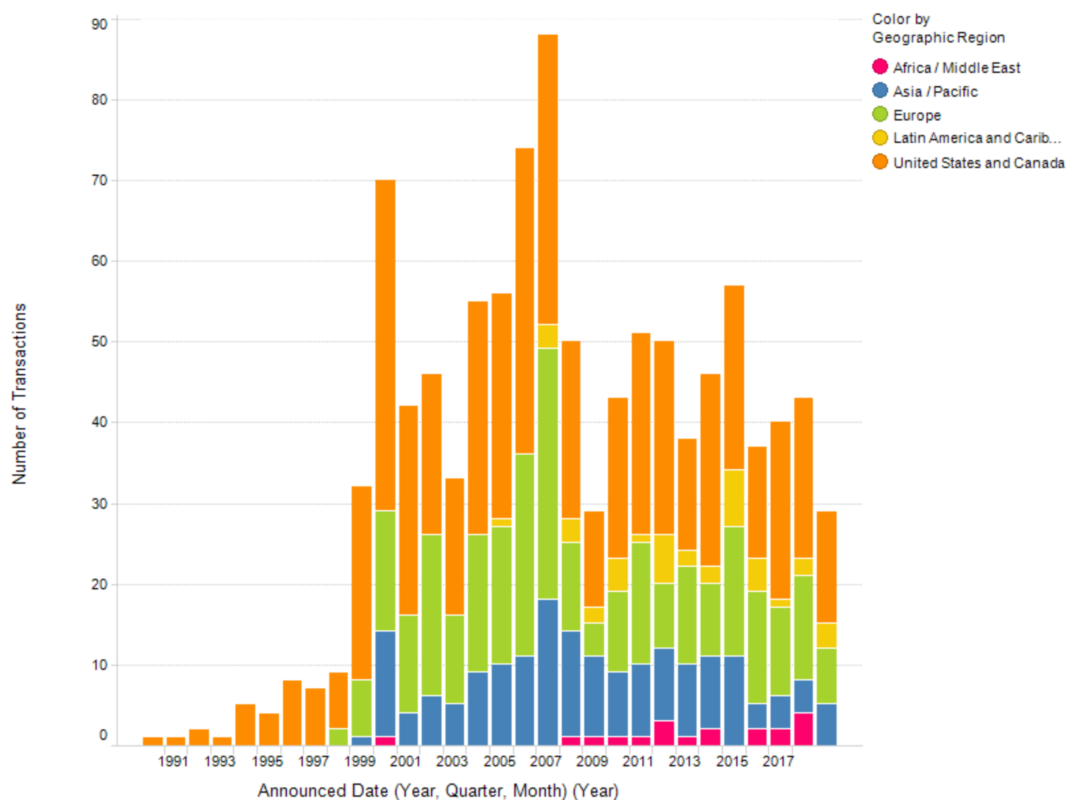
- Energy → the $30,0 billion acquisition of Kinder Morgan Kansas in 2006
- Materials → the acquisition of the Netherland company Nouryon Cooperatief for $12,5 billion in 2018
- Industrials → the $8,5 billion acquisition of HD Supply in 2007
- Information Technology → the $7,0 billion acquisition of Veritas Technologies LLC in 2015

In the due diligence process, the Carlyle deal teams look at the reputation of the company's management, its congruence with Carlyle portfolio, the competitive risk, and the size of the firm. In this sense, it differs from KKR and Blackstone, since Carlyle

seeks to acquire firms that are already well-positioned in terms of competition. Moreover, the due diligence process is supported by specific professionals of the target sector. This modus operandi was particularly useful for Carlyle investments in aerospace and defense. However, it was also extended to investments in healthcare, financial services, retail, telecom, media, technology, and transportation. Once the due diligence is completed, the deal prospect goes under review of fund-level managing directors. If it is approved, it is presented to the investment committee of the involved fund. Each Carlyle fund has a specific investment committee that follows a standard process to approve transactions.

Figure 31: Carlyle investments by sector and geographic region (1989 – 2019)





Source: Capital IQ

3.1.4 Apollo Global Management

Apollo Global Management was founded in 1990, and besides being one of the leading private equity firm is also well known for its contrarian investment style. What distinguishes Apollo, is its philosophy of identifying the most attractive investment opportunities, looking at deals that have a particular legal complexity. Apollo managers have many experiences in investing during periods of economic downturn and focusing on distressed securities, special situations, and restructuring plans. Therefore, the Apollo approach to deal structuring is very disciplined. Its screening process consists of looking for companies that trade at a price multiple below the industry average and establish wealthy debt plans with long maturities and few maintenance covenants. Moreover, the contrarian investment style requires also a particular ability to adapt to changing market conditions. Consequently, Apollo has the advantage of facing only a few competitors while bidding for its target companies.

As of December 31st, 2018, Apollo had $280 billion of assets under management among its three business lines: Credit, Private Equity and Real Assets. The largest unit is Credit with $193 billion of AUM. However, the most profitable is Private Equity which accounts for $69 billion of AUM and has generated an average annual net IRR of 25%[116].

Some features distinguish Apollo from its competitors:

- Investments in industries that competitors typically avoid for their complexity
- Experience in investing in periods of economic downturns
- Its focus on long-term returns, considering the possibility to generate short term negative results
- High integration of business lines thanks to the collaboration across investment professionals

The most important deals closed by Apollo are:

- Casinos and Gaming → the $27,9 billion acquisition of Caesars Entertainment Corporation in 2006
- Real Estate → the acquisition of Realogy Holdings Corp. for $9,2 billion in 2006
- Energy → the $8,0 billion acquisition of EP Energy LLC in 2012
- Information Technology → the $5,1 billion acquisition of West Corporation in 2017

The Apollo investment process follows specific procedures and policies that are reviewed annually and ensure that transactions are well allocated among all funds. The due diligence includes a review of financial statements, peer and industry analysis, plant visits, interviews with management and shareholders, researches on market evolution, and background checks. The investment committee is responsible for giving a double approval to deals. Preliminary approval is necessary for the investment team to continue the valuation of the target company. During the following stage, the investment

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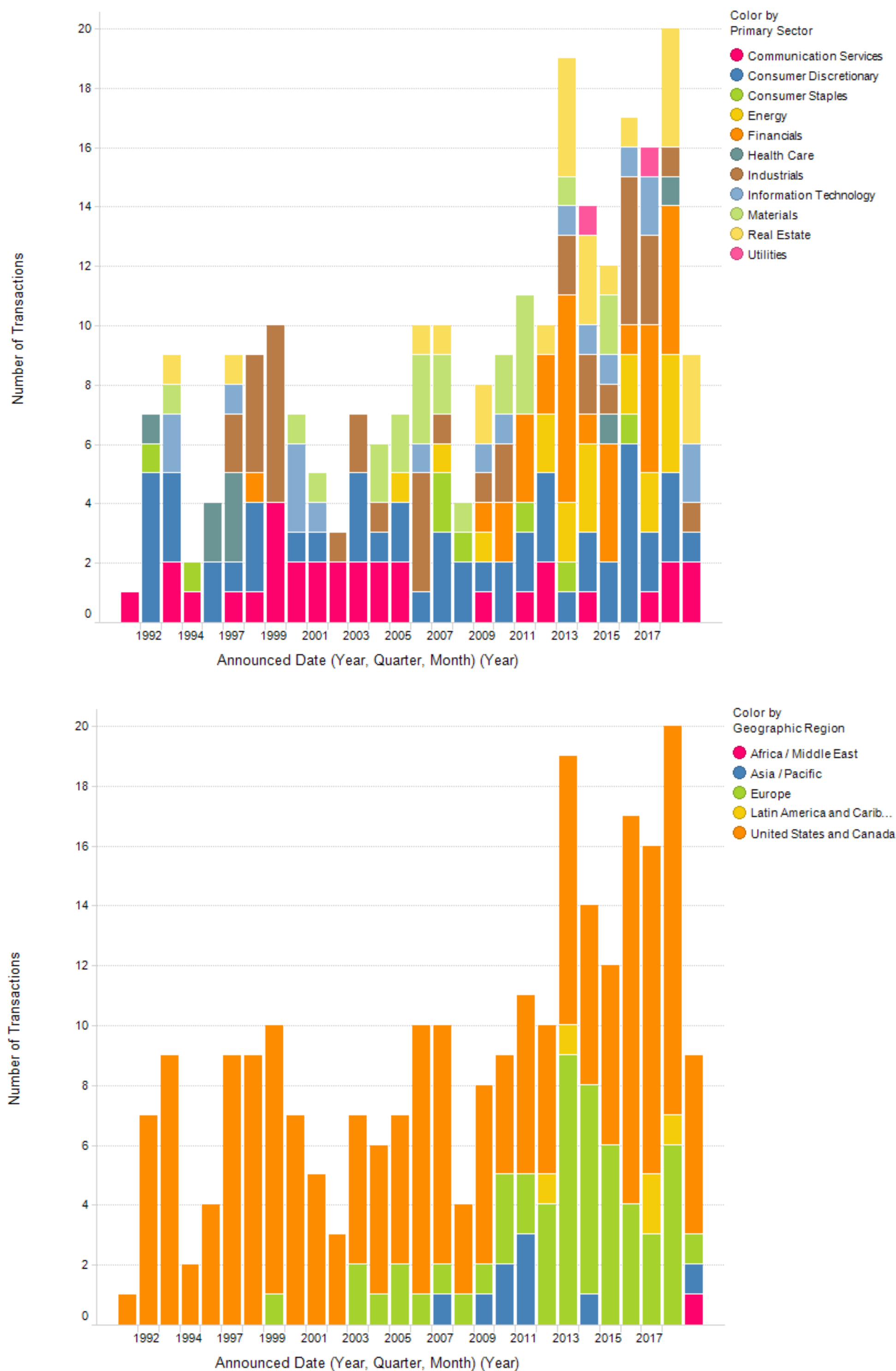
[116] Apollo Global Management Form 10-K, 2018.

committee organizes several meetings with Apollo managing partners who eventually approve the transaction.

Figure 32: Apollo investments by sector and geographic region (1989 – 2019)



Source: Capital IQ

By the first comparison of these four firms, it is possible to make some initial considerations about their investment model. KKR has the most diversified business among different industries with significant investments in all sectors. Blackstone is highly focused on real estate with several real estate transactions that exceed the total number of deals in other sectors. Carlyle completed the highest number of transactions in the referring period, has a well-diversified portfolio, and invested a lot in information technology companies from 2000 to 2007. Apollo is the only firm that has significant investments in financial companies.

The geographic focus is similar for all four private equity firms. Investments in Europe began in the year 2000 and became more and more substantial through time, until in 2018 almost equaled investments in North America. Carlyle was the first company to carry out deals in Asia, in 2000, while Blackstone and KKR started investing in this region in 2006. Investments in Europe and North America have always been more numerous than investments in Asia for all these firms. Apollo, instead, is the only firm with few deals in Asia.

In terms of transactions, Carlyle has historically been the most active company with record highs in 2006 and 2007. However, unlike other firms, Carlyle had a decline in deal numbers from 2007 to 2018. On the other hand, Apollo is the firm that completed the lowest number of deals, with no more than 20 deals per year, but with large sizes.

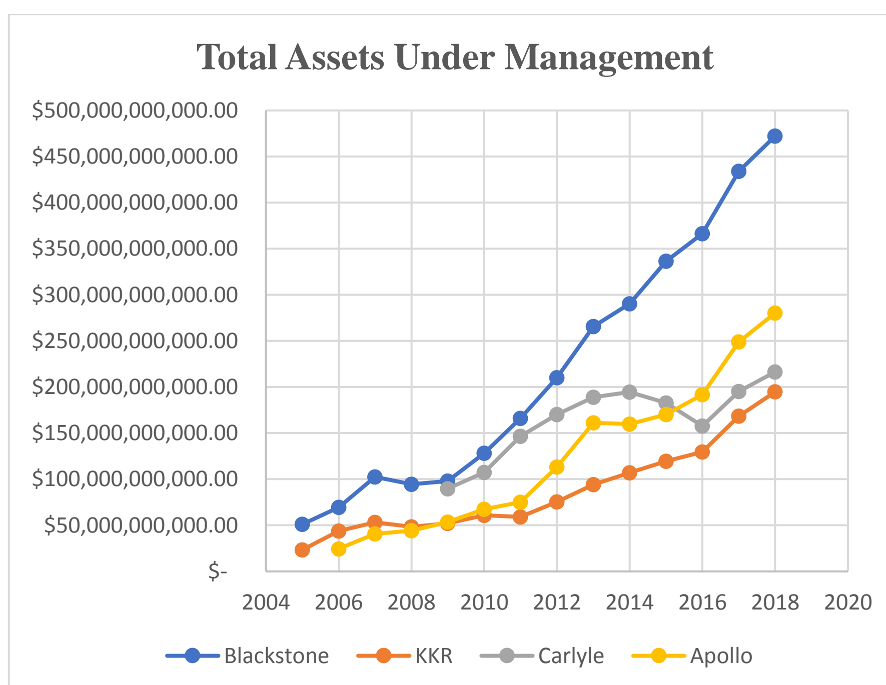
The hiring and training processes of these four firms are in general similar and rely on the selection of highly motivated finance talents with the preference of in-house training of young professionals and significant compensation packages. However, each firm has at least one unique element of corporate governance and human resources management. Blackstone has a particular method of selecting its board members. Each potential candidate is interviewed by the founder: Steve Schwarzman, who will select a manager only if he identifies several individual qualities. Some of the most important figures of Blackstone, like Jonathan Gray and Hamilton James, have been chosen for their leadership and management experiences. KKR has a compensation philosophy that provides every employee with an equity interest in the company and a total of 40-43% of carried interest allocated to employees. It also has a well-designed system of valuations and feedbacks to determine each employee's contribution to the firm.

Carlyle provides its professionals with regular and targeted training regarding issues of corporate governance, conflicts of interest, anti-corruption, economic sanctions, and anti-money laundering. Apollo selects its interns from a pool of applicants who have received a reserved invitation. In order to receive an invitation, candidates must be noticed by a recruiter.

3.2 FINANCIAL METRICS

A first analysis to establish which of the sample firms has the largest market share is a comparison of assets under management. Assets under management are an industry-specific metric that measures the total market value of assets managed by an investment firm.

Figure 33: Blackstone, KKR, Carlyle[117], and Apollo Total AUM (2005-2018)

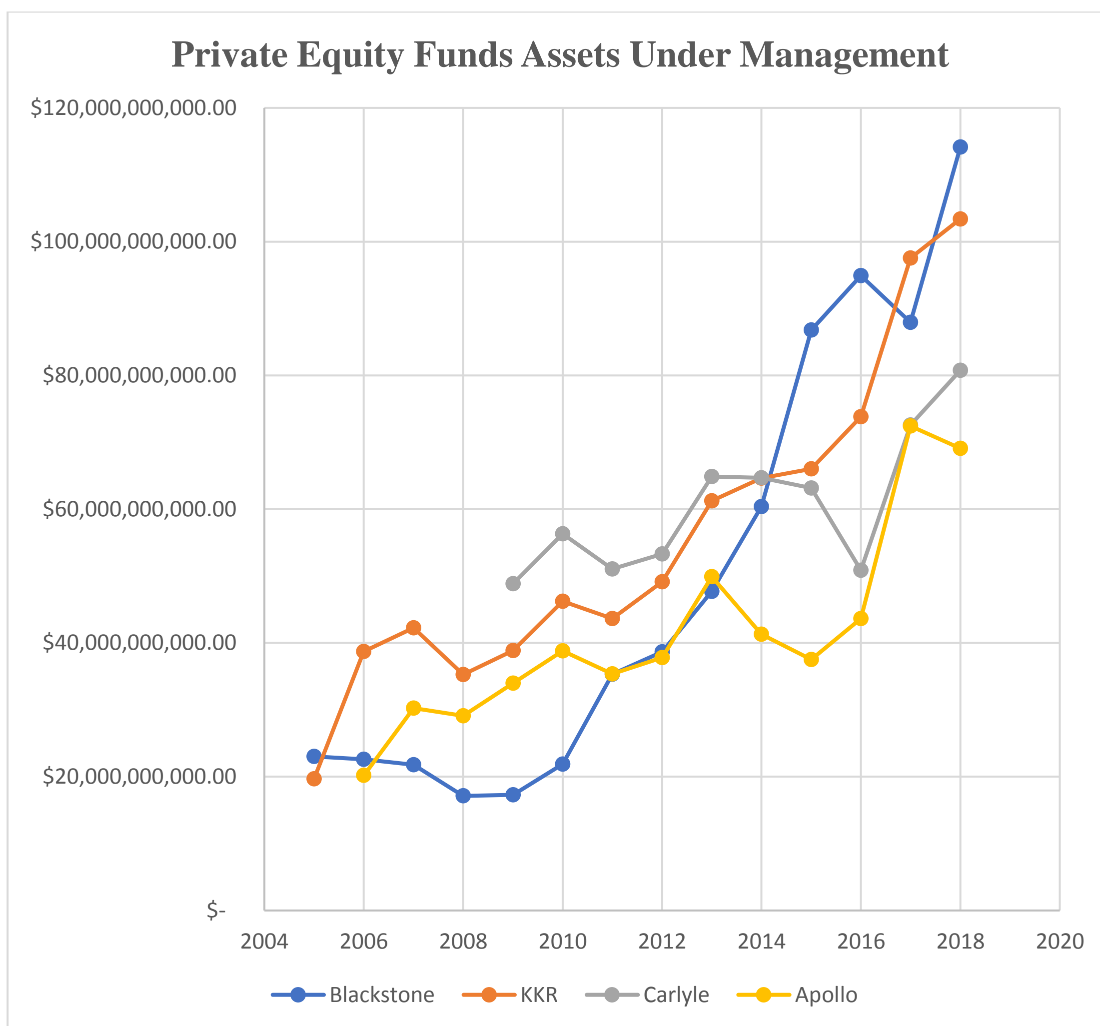


Source: Elaboration of 10-K forms of sample companies.

[117] Data of Carlyle are disclosed from 2009

In these terms, the largest investment firm has always been Blackstone for the referring period. However, Carlyle could have had more AUM from 2005 to 2009[118]. However, total AUM considers assets from all business lines, and so include fixed income, real assets, hedge funds solutions, and other units. It is then necessary to consider private equity AUM and real estate AUM in order to highlight the results of sample firms leveraged buyouts.

Figure 34: Blackstone, KKR, Carlyle[119], and Apollo PE Funds AUM (2005-2018)



Source: Elaboration of 10-K forms of sample companies

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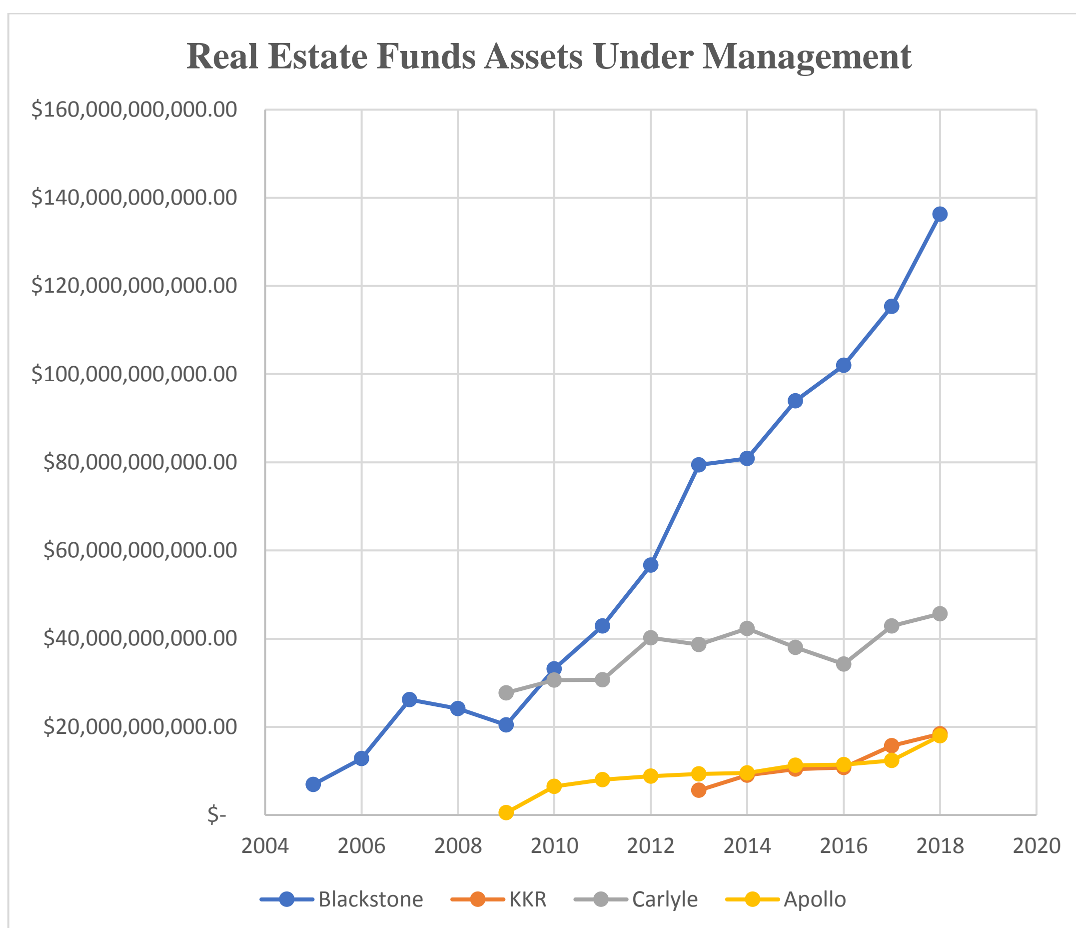
[118] Data before 2009 are not disclosed because Carlyle went public in 2011.
[119] Data of Carlyle are disclosed from 2009.

Figure 35: Blackstone, KKR, Carlyle[120], and Apollo Real Estate Funds Assets Under Management (2005-2018)

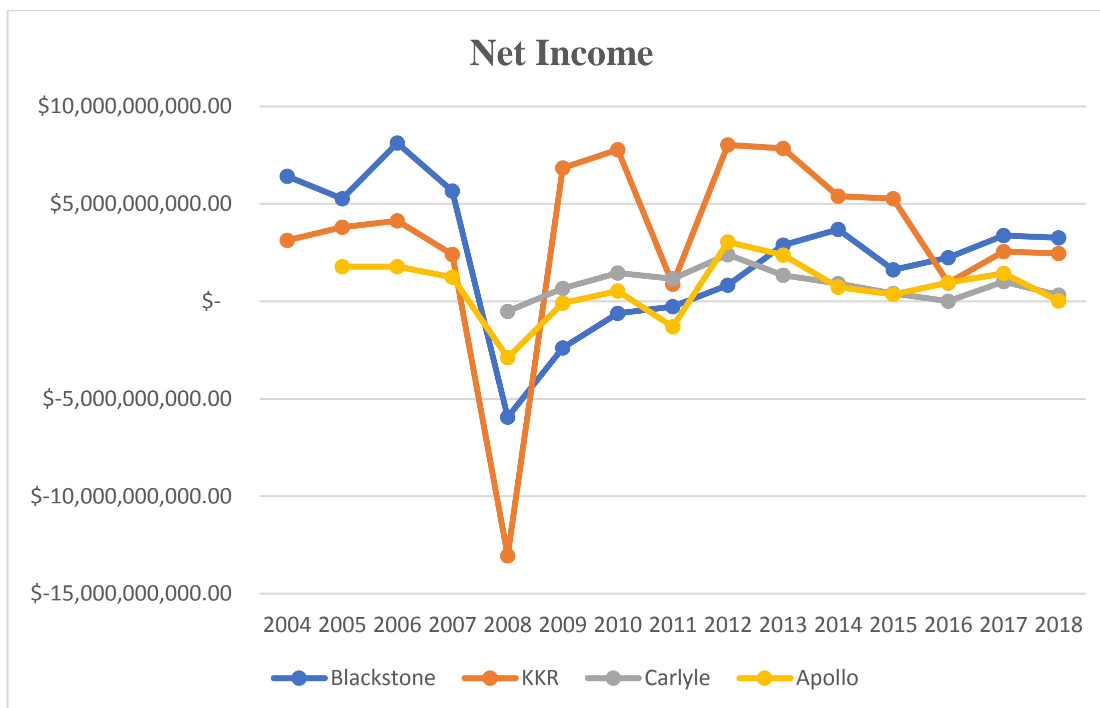


Source: Elaboration of Capital IQ Database and 10-K forms of sample companies

As a result, the 4 sample investment firms have private equity units that are similar in sizes but have a different focus and investment styles. Moreover, they differ on other business lines, in particular, regards the Blackstone focus on its real estate unit and Apollo focus on its Credit unit. In order to establish which structure is more effective, it is necessary to look at historical performances and fees of sample firms.

[120] Data of Carlyle are disclosed from 2009.

Figure 36: Blackstone, KKR[121], Carlyle[122], and Apollo net income (2004-2018)



Source: Elaboration of 10-K forms of sample companies

In terms of net income, there is not a firm that prevails on the others; however, the performances of investments could be exploited by looking at revenue items. In a private equity firm income statement, the revenues' most relevant items are Management Fees and Investment Income, while expenses are for the majority salaries and employees' benefits.

Management fees depend on:

- the partnership agreement, in particular on the percentage of the management fee that general partners require and negotiate with limited partners
- the amount of total AUM
- the type of assets targeted, and in particular the risks associated with the investments

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[121] Data of KKR are reported fee-paying AUM of the real asset unit, which are disclosed since 2013.

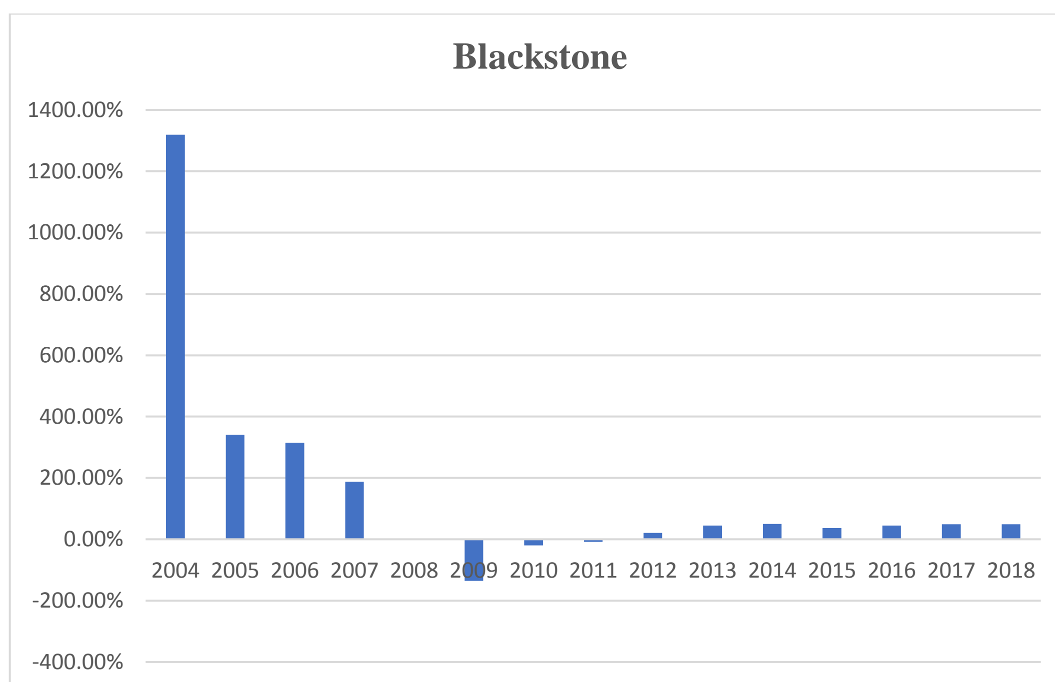
[122] Data of Carlyle are disclosed from 2009.

Investment Income includes:

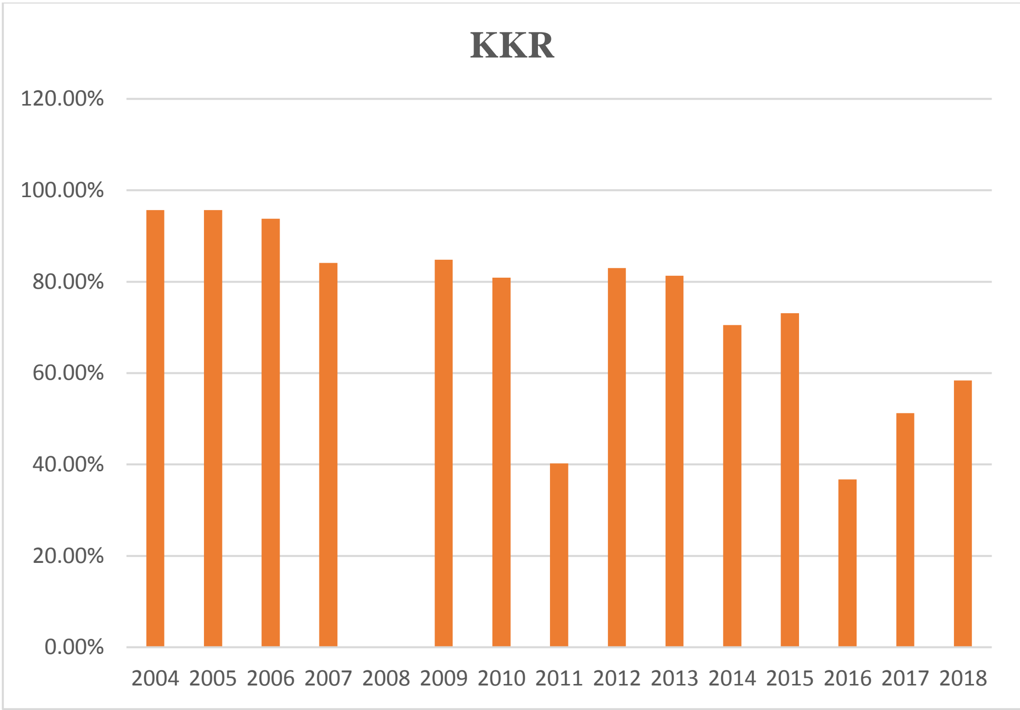
- carried interest (Performance Allocation) which depend on the fund's net returns
- gains or losses on investments, resulting from capital appreciation or depreciation of general partners' investments in the firm funds

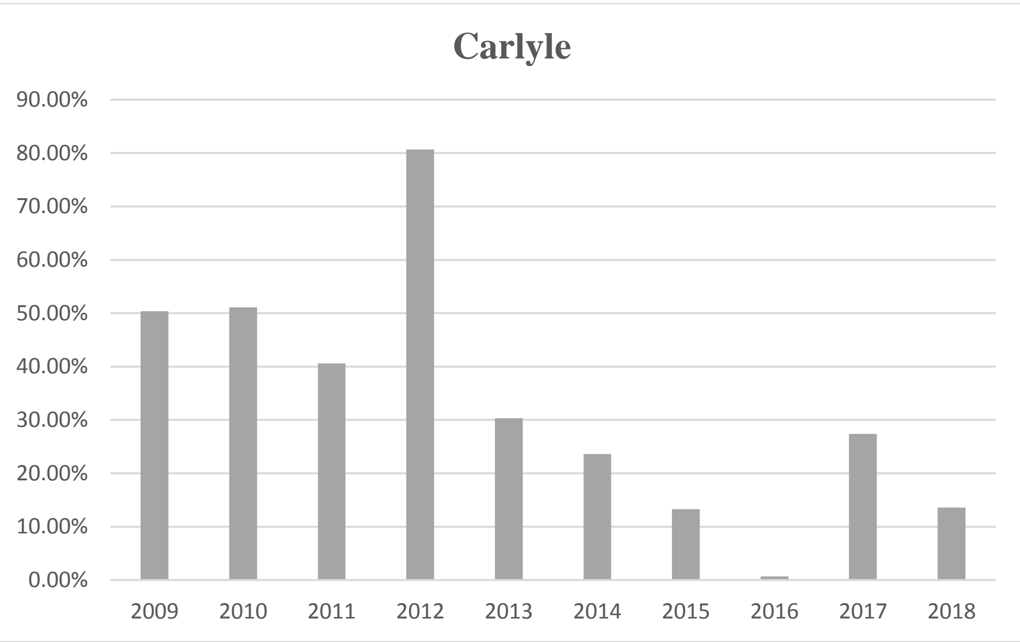
Consequently, the amount of investment income depends on the factors that influence management fees, but also on management performances and market conditions that affect the value of AUM. For this reason, Investment Income could be a good measure of a private equity firm's profitability. However, in the income statement of investment firms, investment income is not always considered a revenue item, but sometimes is considered as an Unusual Item[123]. For these firms, the net income margin shows clearly the impact of Investment Income on earnings.

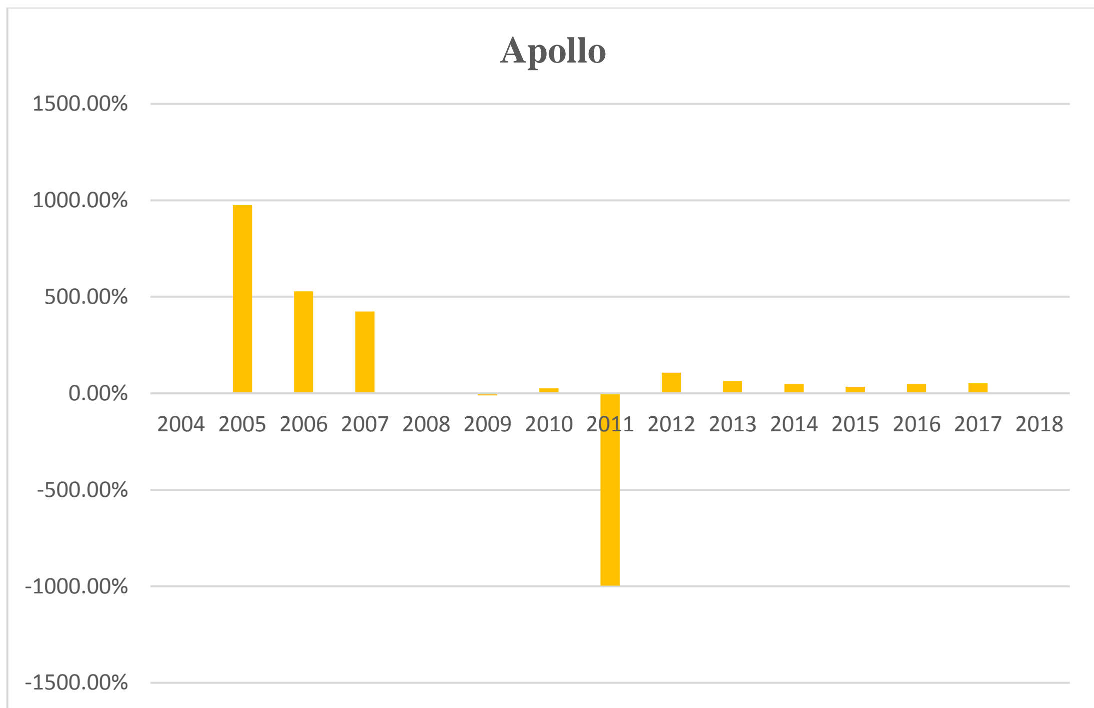
Figure 37: Blackstone, KKR, Carlyle and Apollo net income margin (2004-2018)



[123] For Blackstone and Apollo.


KKR
120.00%
100.00%
80.00%
60.00%
40.00%
20.00%
0.00%
2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018

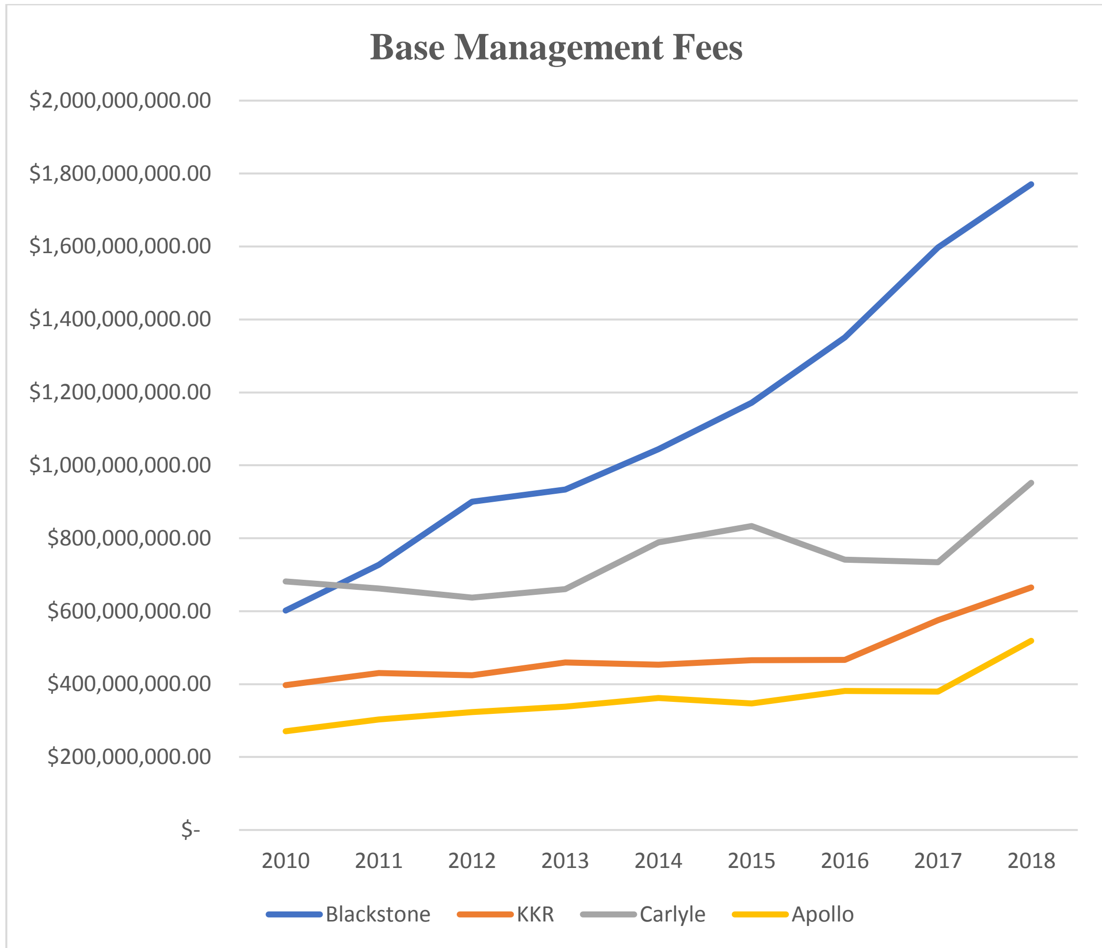

Carlyle
90.00%
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
2009 2010 2011 2012 2013 2014 2015 2016 2017 2018

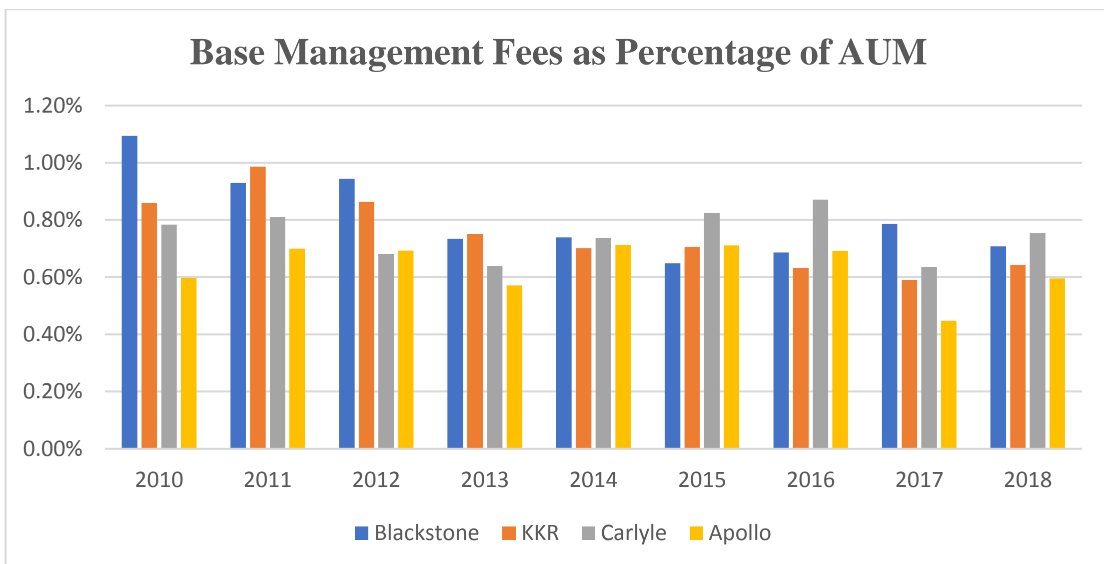


Source: Elaboration of 10-K forms of sample companies

Eventually, a good method to compare the performances of different investment firms would be an analysis of management fees and investment income compared to private equity funds AUM and real estate funds AUM.

Figure 38: Blackstone, KKR, Carlyle, and Apollo total management fees, in dollars and as a percentage of private equity and real estate AUM (2010-2018)



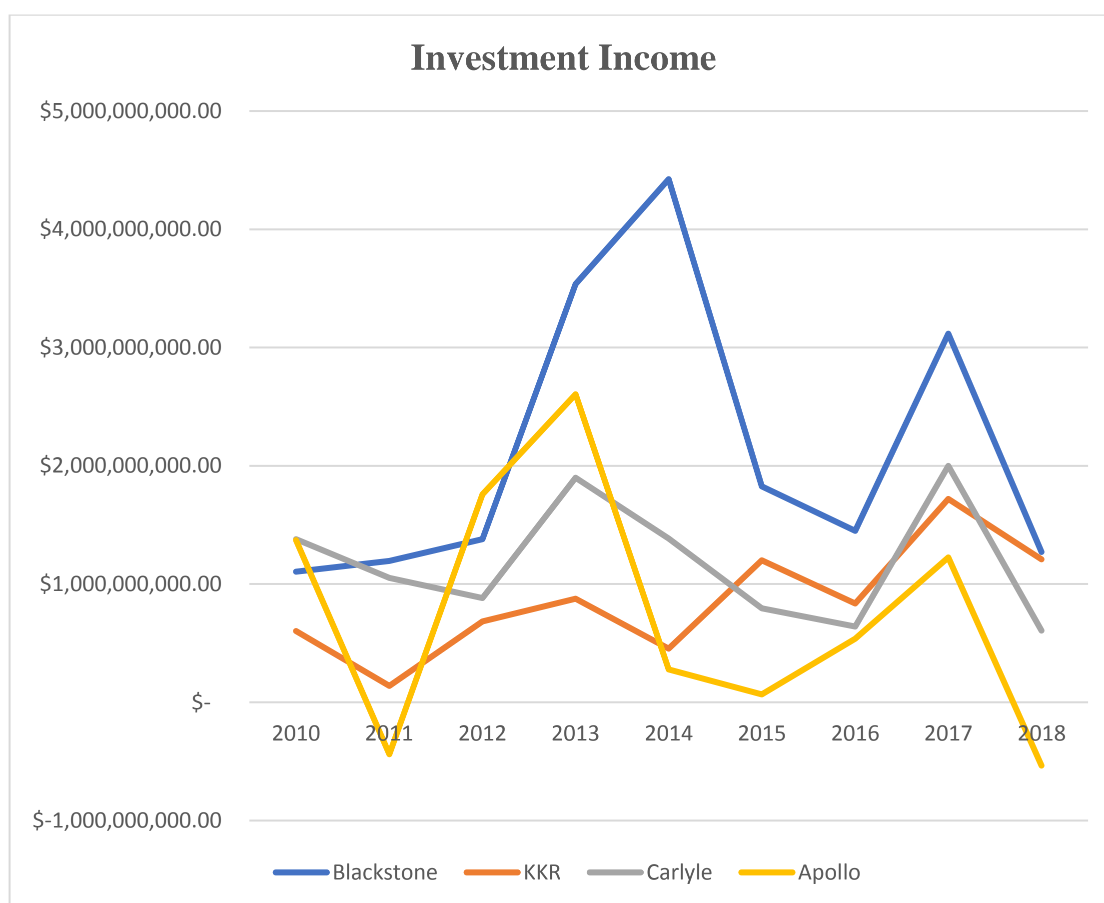


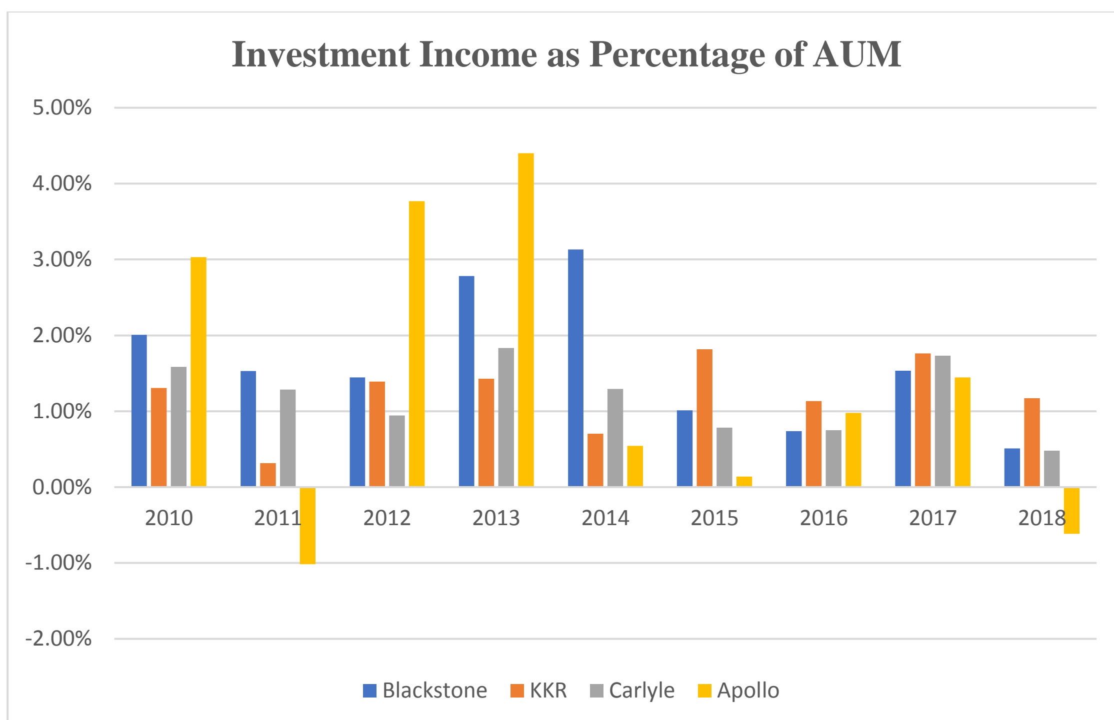
Source: Elaboration of 10-K forms of sample companies

A sustained growth in management fees is a good indicator of expansion since management fees are calculated on capital commitments to funds. Moreover, changes in management fees as a percentage of AUM stands for changes in the costs that limited partners pay for managing funds' assets. A declining could indicate that the new funds of the firm require less management fees or that limited partners prefer to invest in funds with lower management fees.

Investment income is mostly composed of carried interest and, in a smaller measure, of profit from investment activities. Investment income considers both realized and unrealized gains and is a good measure of investment's performances. While comparing investment income with AUM, it is possible to observe what are the funds' results compared to the initial investments.

Figure 39: Blackstone, KKR, Carlyle, and Apollo total investment income, in dollars and as a percentage of private equity and real estate AUM (2010-2018)





Source: Elaboration of 10-K forms of sample companies

Finally, while looking at market returns of traded stocks, the sample firms show a high degree of correlation. Indeed, these investment firms have several common factors that affect their returns. The principal factors are the level of interest rates, the average conditions of credit terms, and the average prices of target companies shares. Even if the sample firms have different business lines and different portfolio diversification, the market perceives them as direct competitors. This statement is even more evident while looking at the implied volatility of share prices. Moreover, the volatility of private equity firms is profoundly affected by the conditions of the global credit market. Therefore, the volatility has significant increases during periods of declining credit indices.

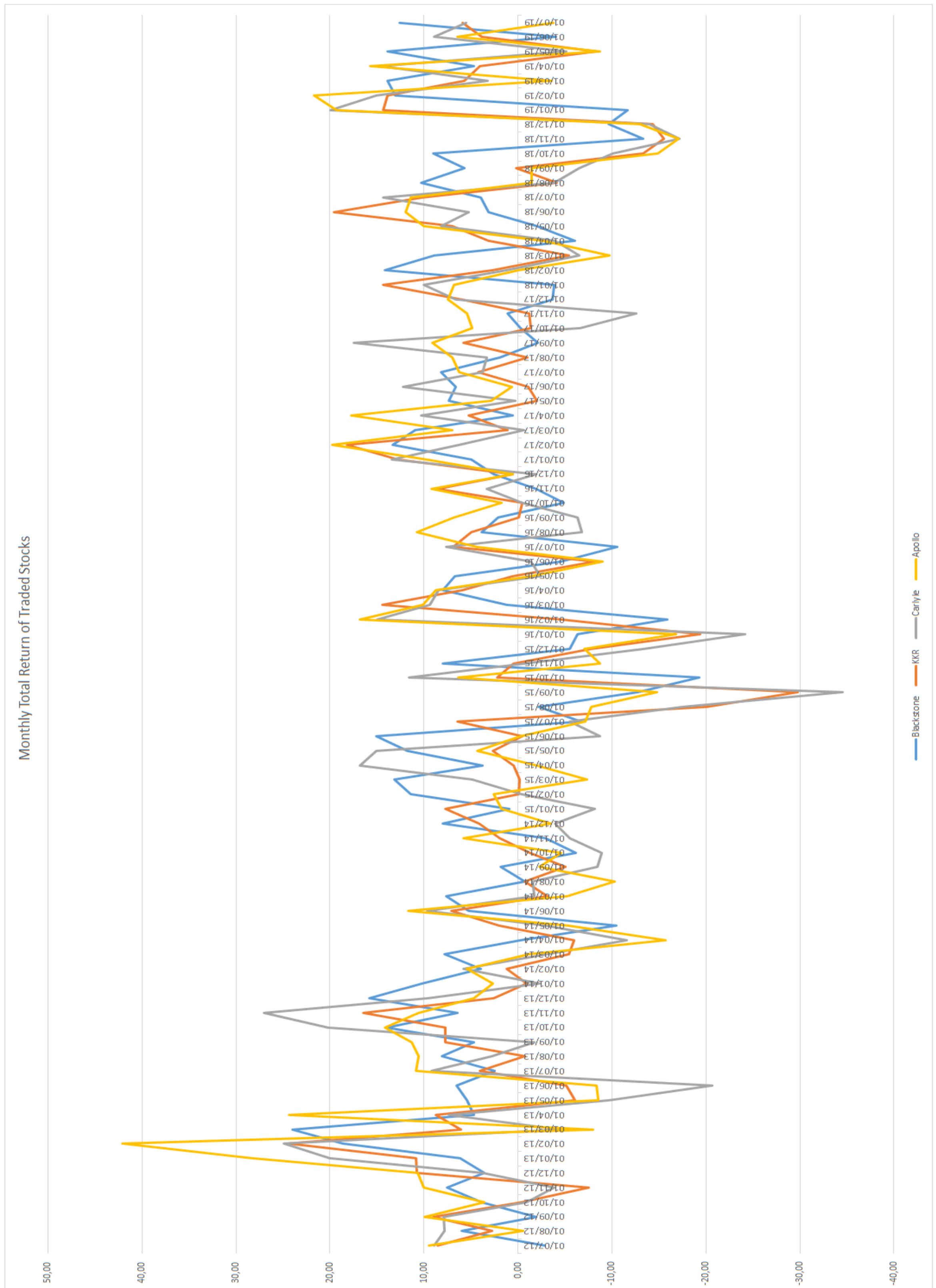
Figure 40: ICE BofAML US High Yield Master II[124] Index value (01.2013-07.2019)

Source: ICE Benchmark Administration Limited (IBA)

This fact suggests that volatility depends on the investment strategies and the degree of leverage of private equity firms. As an instance, during the second half of 2013, when the credit market was suffering, Apollo had higher volatility than its competitors. This effect could be explained by the large investments of Apollo credit unit, for a total increase of 56,6% in AUM (Apollo Global Management Form 10-K, 2013). The increase is coherent with Apollo's strategy to invest in periods of uncertainty. Another interesting period to examine was the beginning of 2016 when several economic events increased the overall market volatility. The most affected firm was Carlyle for several reasons. Carlyle had historically been the company with more investment in Asia and the industrial sector. At the end of 2015, in China, there was a significant reduction in the capital spending of business operating in energy, metals and mining industries, due to low commodities prices, in particular, oil and gas prices. These events caused significant reductions in Carlyle funds appreciation and a significant decrease in its private equity AUM.

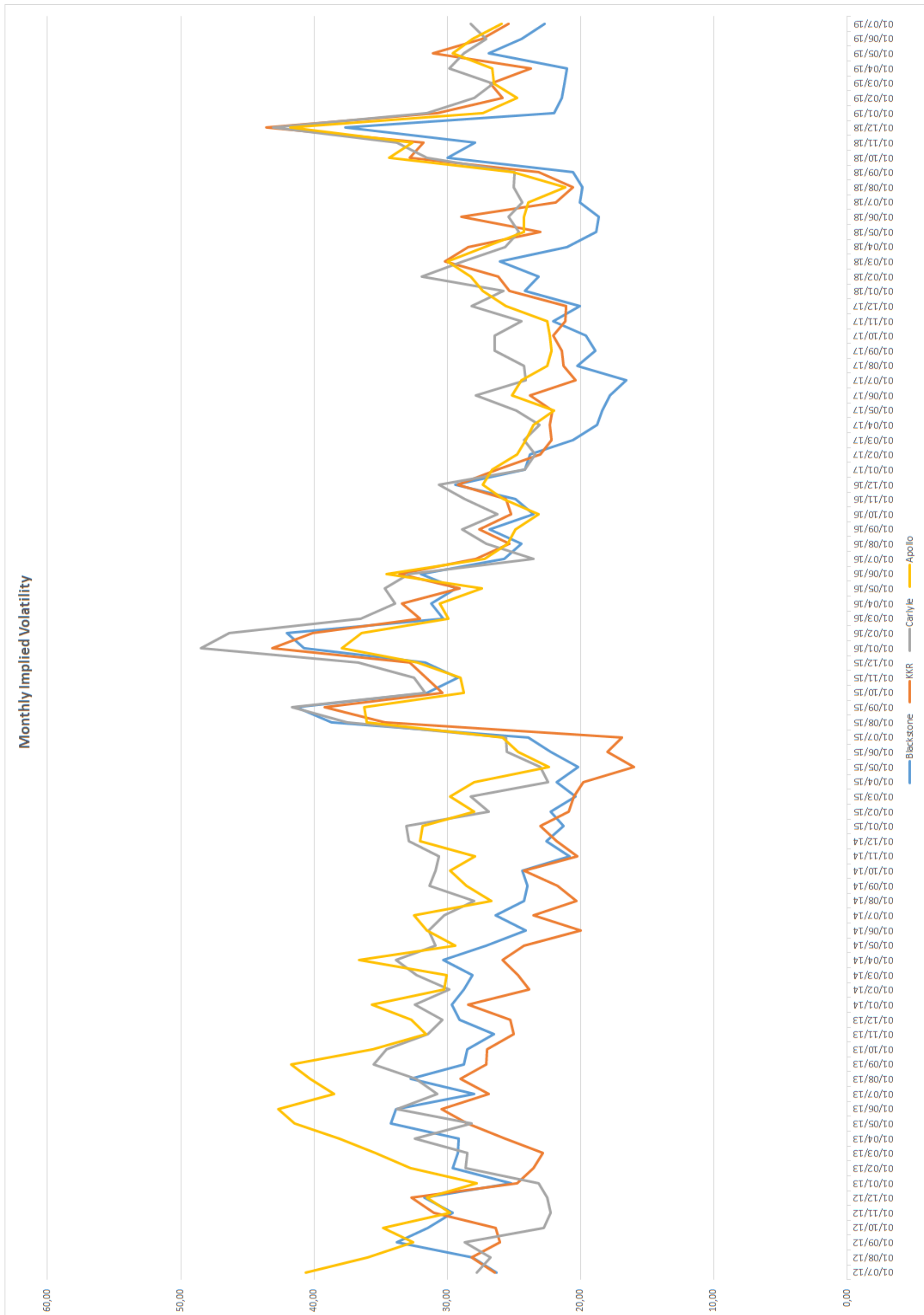
[124] ICE BofAML US High Yield Master II measures the performance of corporate debt below the investment-grade, publicly issued in the US domestic market

Figure 41: Blackstone, KKR, Carlyle, and Apollo Market Returns (2012-2018)



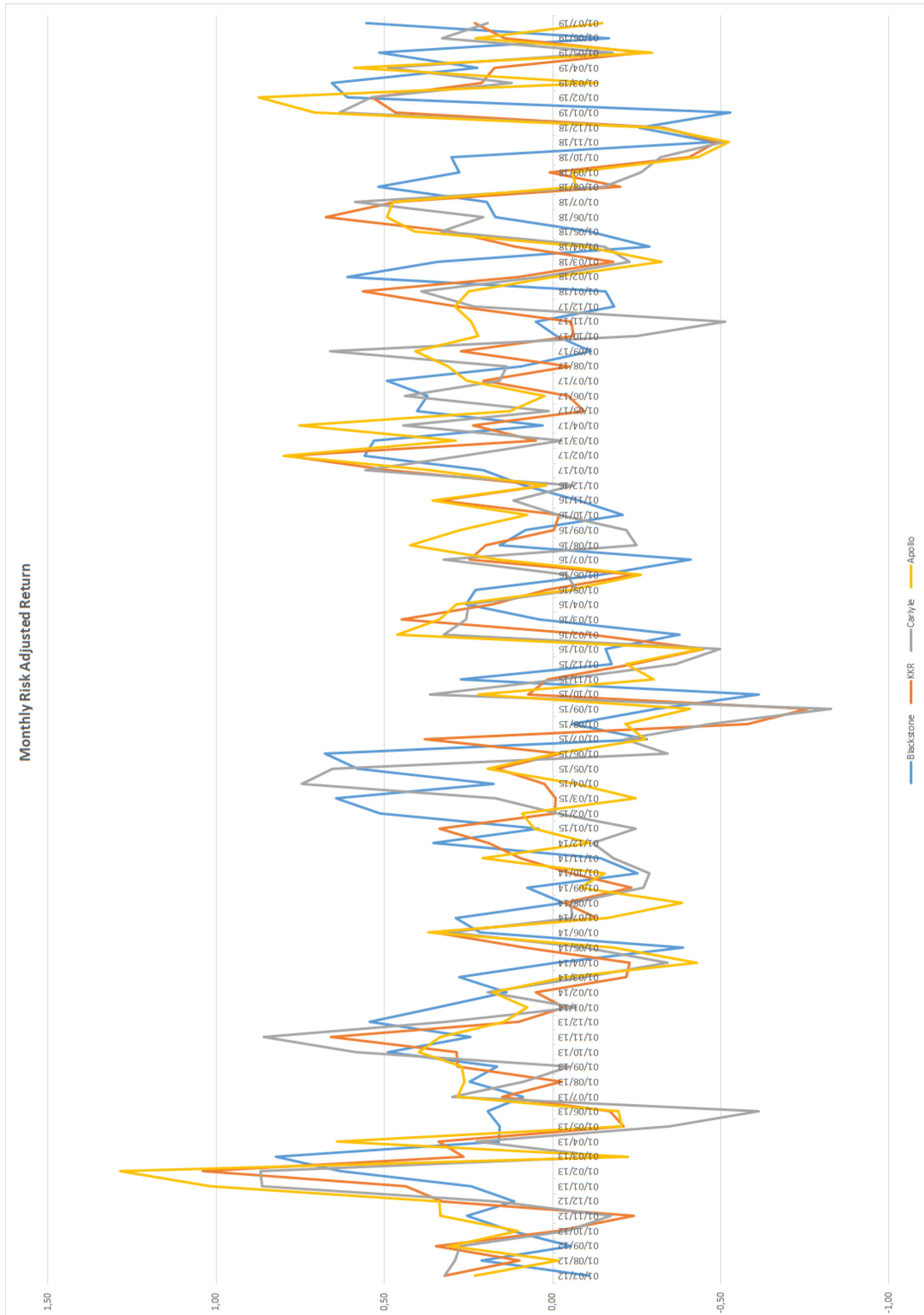
Source: Elaboration of Bloomberg Data

Figure 42: Blackstone, KKR, Carlyle, and Apollo Implied Volatility (2012-2018)



Source: Elaboration of Bloomberg Data

Figure 43: Blackstone, KKR, Carlyle, and Apollo Monthly Risk-Adjusted Return (2012-2018)



Source: Elaboration of Bloomberg Data

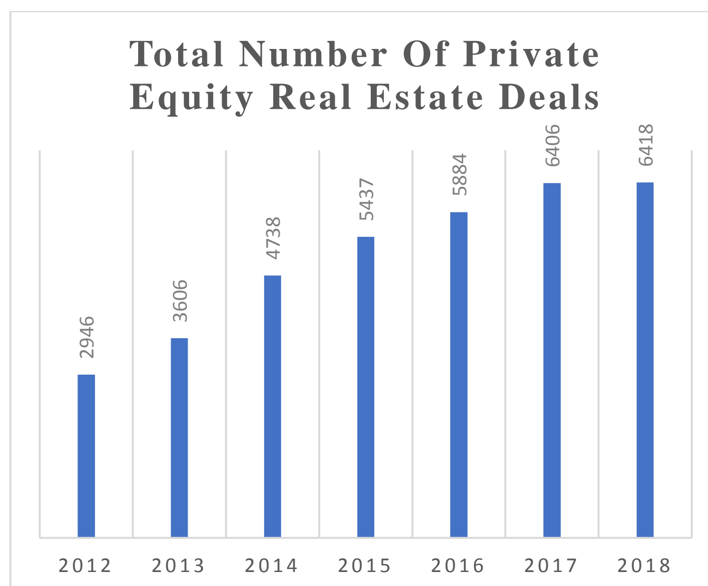
CHAPTER 4

Private equity investing in real estate properties: the Blackstone case

4.1 PRIVATE EQUITY ACTIVITIES IN THE REAL ESTATE INDUSTRY

The investing known as real estate private equity became popular at the beginning of the century when many private equity firms started to raise funds to buy properties. Compared to other private equity investments, investments in real estate are typically more leveraged with an average debt ratio of 75% and have a more extended holding period: 6-8 years[125].

Figure 44: Private equity deals in the real estate industry and aggregate value in billions of US dollars (2012 – 2018)



[125] Phallipou, 2014.

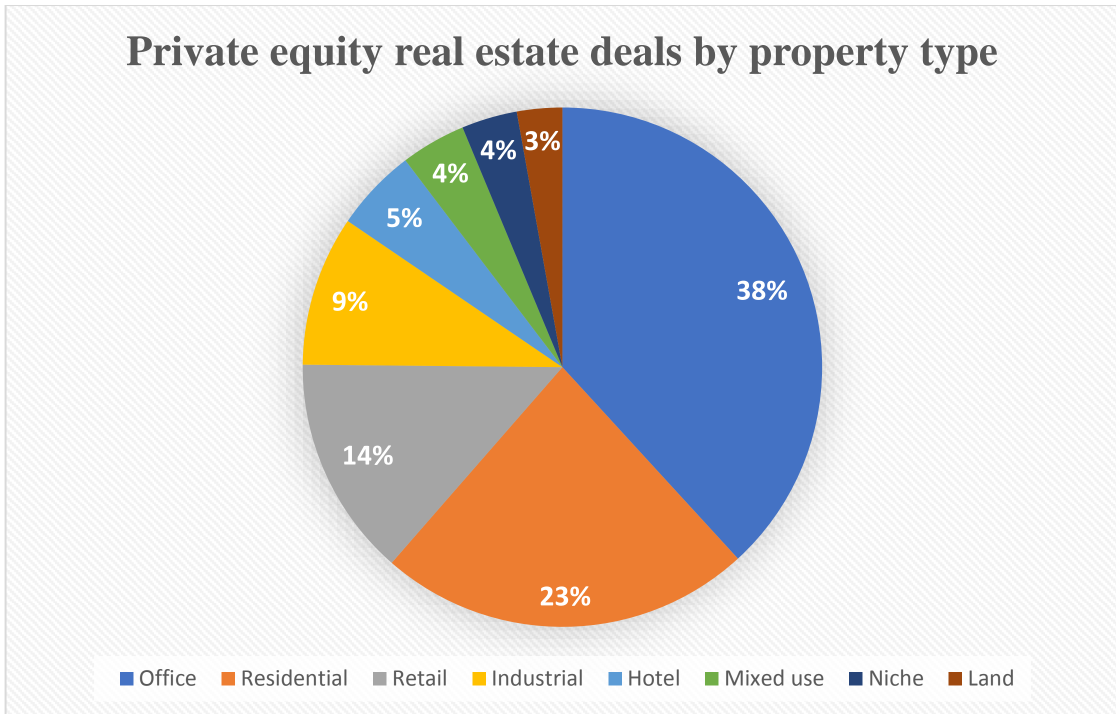
Source: Elaboration of Preqin Pro Data

While investing in real estate, general partners focus on two primary value sources: improvements in real estate assets and business cycle benefits. One of the most relevant strategies of real estate leveraged buyouts is the so-called Buy wholesale and sell retail. This strategy consists of buying a Real Estate Investment Trust and then sells its properties to multiple investors. This market operation will return a profit if there is an arbitrage opportunity when the REIT is valued less than what different buyers will pay for the sum of its assets.

A REIT is an investment company that focuses on purchasing, managing, and developing income-generating properties. A REIT typically invests in apartment complex, office buildings, retail centers, warehouses, hotels, industrial infrastructures, and lands. Most of the REITs specialize in a particular type of asset[126]. However, some REITs own a diversified portfolio in terms of property types.

[126] Like in the case of the Equity Office Properties Trust, the largest REIT ever acquired by a private equity firm

Figure 45: Percentage of investments in each property type (2018)



Source: Elaboration of Preqin Pro Data

According to the Internal Revenue Code, in order to be qualified as a REIT, a company must return to shareholders at least 90% of its taxable income every year, in the form of dividends. REIT revenues typically rely on rents on the properties, asset sales proceeds, and interest on mortgages. In the United States, many firms that have high investments in properties, try to structure themselves as REITs. A REIT requires at least 75% of total assets invested in real estate that must generate at least 75% of the company's operating income. The main reason is that REITs have tax advantages. Private equity firms often target REITs, since unlikely traditional real estate investments, REITs are highly liquid[127]. Moreover, REITs offer steady cash flows, but little capital appreciations opportunities to investors. For this reason, many private equity firms try to achieve profits from asset divestitures while investing in REITs.

[127] A high number of REITs are publicly traded

Real estate funds have different primary strategies depending on the levels of risks and returns of investments and on the assets that they target.

Primary strategies include:

- REAL ESTATE DEBT STRATEGIES

  Real estate private debt funds seek to acquire senior and mezzanine real estate collateralized loans following a specific credit strategy. These funds have typically shorter lives and investment horizons. Compared with other strategies, debt funds offer to investors the lowest possible risk profile, a steady income, and limited upside potential.
- CORE

  Core investors, or income investors, focus on high-quality properties that generate stable income with slight risk. These kinds of properties usually require minimal efforts from asset managers since their values have minimal volatility. A real estate core fund uses less than 60% of equity for its investment and achieve an annual rate of return between 7% and 10%. Like for debt strategies funds the return comes from property rents and more rarely from capital gains
- CORE-PLUS

  The targets of core-plus investors are income properties that have little growth potential. Compared to core investors, they have a more moderate risk profile and expect improvements in their assets. Since core-plus properties require some upgrades, fund managers play an active role in property management and cash flows are less predictable. Core plus investments have 40%-60% equity and an annual return of 9%-13%.
- VALUE-ADDED

  Value-added real estate funds acquire poorly managed properties that generate an income under their real potential. Then they set up a strategic plan and sell the assets once they achieve increases in value. They use 25%-40% of equity and generate an annual return of 13%-18%.
- OPPORTUNISTIC

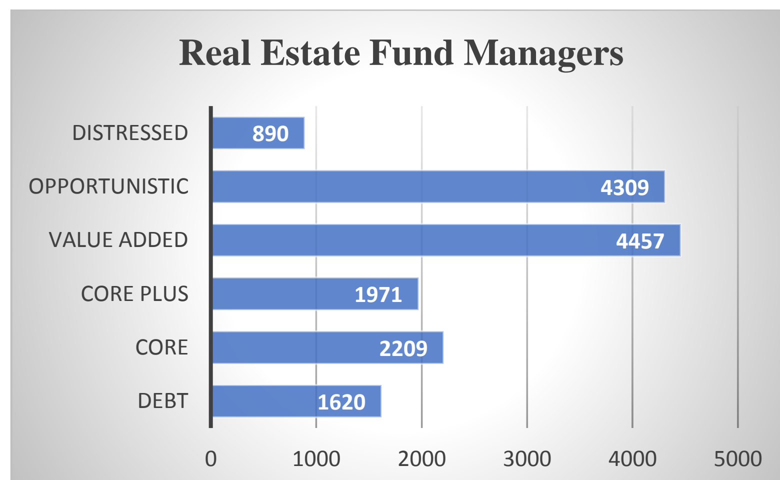
  Opportunistic real estate funds invest in properties with the only intention to capture a value appreciation. The average assets they invest in need specific

projects in order to realize their full potential. Some good examples are entirely vacant buildings or lands that have significant development opportunities. Since opportunistic properties have little or no cash flow at the time of the acquisition and require the most complicated business plans, investors face the most significant risk. The equity invested is usually less than 30%, but if managers are successful, investors can expect a return of more than 20%.

- DISTRESSED

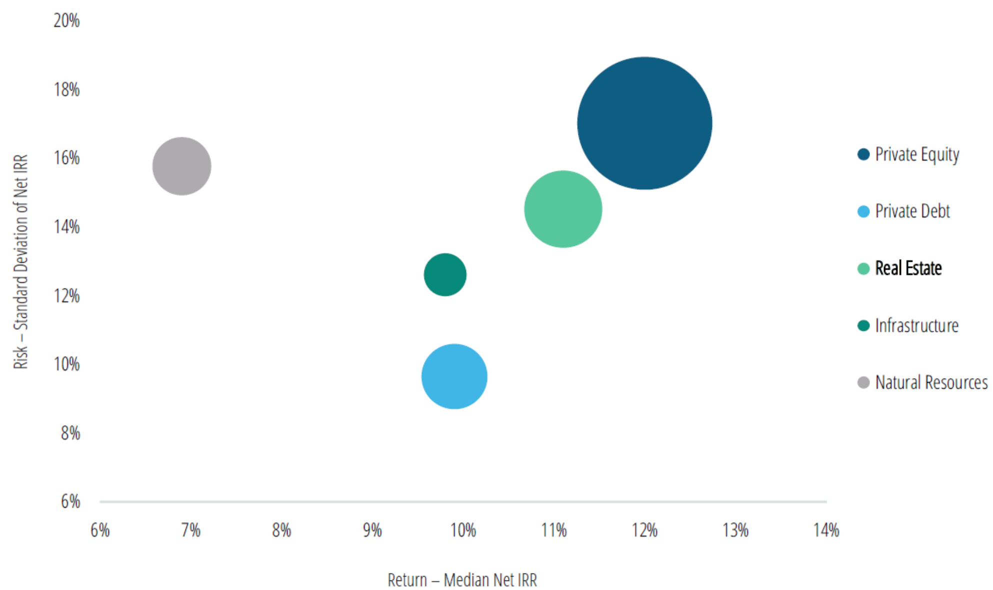
  Distressed real estate investing follows the same method of opportunistic funds, but target properties that suffer unique situations. Distressed real estate assets are the riskiest investment in real estate since distressed properties may be in foreclosure or have lost their tenants. However, for many investors, distressed properties are the ideal opportunity since they usually sell at a discount and have significant upside potential. Competition for distressed real estate assets is also limited due to significant barriers to entry that rule out retail investors. Distressed real estate assets are typically less targeted than non-distressed assets. Consequently, due diligence usually lasts only two weeks compared to the average 60 days of common bidding competition for non-distressed assets. Bidding for distressed assets is also binding and requires an initial deposit of 10% of the transaction value. Therefore, only large funds and institutions have the skills and possibilities to invest in distressed assets.

Figure 46: Active real estate fund managers by primary strategy (2018)



Source: Elaboration of Preqin Pro Data

Figure 47: Average measure of risk and return by asset classes from 2005 to 2015



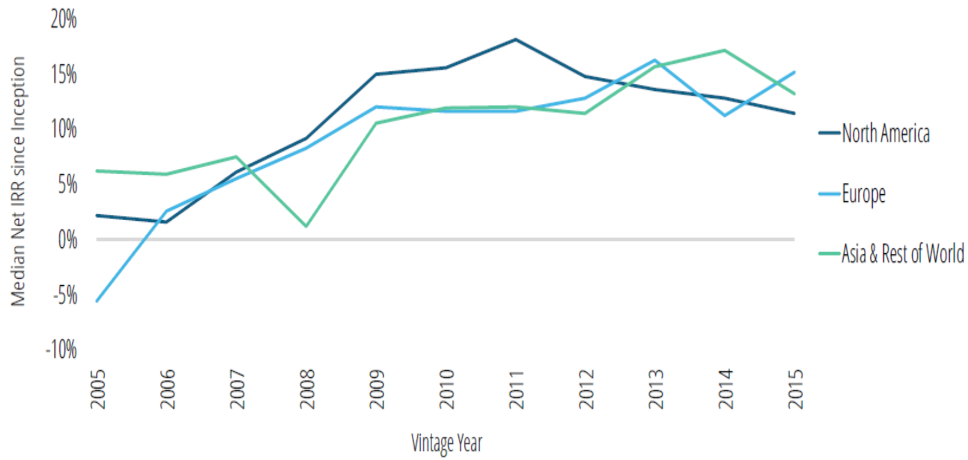
Source: Preqin Pro

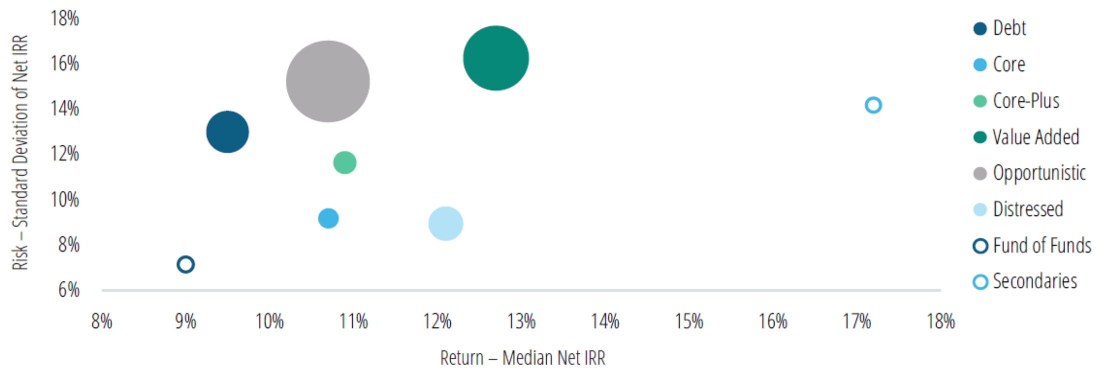
Compared with private equity investments, real estate investments are typically less risky and return a quite lower rate on average.

The performances of real estate funds are mainly affected by:

- General and local economic conditions like demand and supply of real estate assets and hotels occupancy, changes in interest rates and changes in target companies operating income
- Real estate industry conditions like mortgages default rate, financial resources of tenants, habits of tenants, property repairs, property value, changes in building and consumers travel activities
- Environmental changes
- Government and regulatory factors like rent control, real property taxes, income tax rates, deductibility of interest expenses, and litigation expenses.

Figure 48: Performance of real estate funds[128] *by geographic focus and primary strategy from 2005 to 2015*





Source: Preqin Pro

In Figure 48, opportunistic funds have a lower median return rate than value-added and core-plus funds. However, for the period from 2010 to 2015, the median return of opportunistic funds is higher than any other[129]. These results suggest that these funds suffered more during the economic recession, which is reasonable considering that they are more leveraged than other funds. Another interesting point is the low standard deviation of investments in distressed real estate assets. Indeed, many distressed assets are high-quality assets that suffer particular situations like foreclosure. These properties could be safer than other properties after recovery or repositioning.

[128] The size of each circle represents the total capitalization of funds.
[129] Opportunistic: 15,6%; value-added: 15,4%; core-plus: 12,5%, according to Preqin.

4.2 BLACKSTONE REAL ESTATE INVESTMENT CRITERIA

The Blackstone Real Estate Group was founded in 1991. In 2018, it was ranked the third real estate investment manager of the world, with $136,2 billion of assets under management. Blackstone portfolio as of March 2019 includes 231 million office square feet globally, 75 million square feet of retail assets, 151.000 hotel rooms, 561 million square feet of logistics properties and 308.000 residential units and homes[130]. In 2007 the real estate unit overtook (in terms of assets under management) the Blackstone private equity funds and became the most relevant business line of the group. Many investments of Blackstone in the real estate industry are carried out by its main subsidiary: Blackstone Real Estate Advisor, founded in 1992. This subsidiary holds the firm main real estate funds, named Blackstone Real Estate Partners. BREP includes global funds and funds focused on investments in Europe or Asia. These funds invest in opportunistic real estate assets that include hotels, office buildings, industrial assets, residential, shopping centers, and real estate operating companies. However, in recent times Blackstone has also launched three real estate debt investment funds and two core-plus real estate funds.

Blackstone investments in real estate seek to acquire high quality, well-located yet undermanaged assets. Its relationships within the industry allow Blackstone to obtain large and exclusive deals, execute investments quickly, and secure a favorable price. The selection of the target consists of a first screening and a due diligence process. In these stages, the investment team evaluates the general business of the target company or assets, establish the business plan, and the investment criteria. In order to be approved, the transaction goes under the review of the relative review committee. Review committees are composed of managing directors of the real estate segment and other professionals selected for their knowledge of the target sector and geographic location of the deal. Once the transaction is approved, the investment team becomes responsible for seeking value creation and addressing any business issue through active asset management. Compared to other private equity firms, Blackstone

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[130] www.blackstone.com.

has a more articulated system of deals review. The approval involves both review committees and investment committees, depending on the size, region, and type of investment. As an instance, residential real estate investments, usually require a more in-depth review, since they may more susceptible to adverse changes in market trends and present additional risk compared to commercial real estate. The review is carried out by several senior leaders of Blackstone and managing directors of the real estate unit. The committees evaluate a potential portfolio firm relying on the quality of the real estate assets, their conditions, exit strategies, risk factors, economic and political macro trends. The fact that these committees, which include a wide mixture of real estate and investing expertise, review a high number of deals allows Blackstone funds to invest in a numerous, yet high-quality, real estate assets. Moreover, the deal teams have dedicated platforms for analyzing the real estate market conditions. Thanks to these advantages, only about twelve of Blackstone deals had ever lost money, and those had been relatively small[131].

This section presents data on Blackstone's real estate fund sizes, performance, and total real estate transactions. It also contains some descriptions of Blackstone's most important deals in the real estate industry and data on overall real estate performances.

Figure 49: 13 most relevant real estate funds owned by Blackstone Real Estate Advisor. Funds size and commitments are in millions of US dollars

Fund	**Size**	**Original general partners commitments**	**Current portfolio companies (2019)**	**Vintage year**	**Primary Strategy**	**Investment criteria**	**Geographic focus**
BREP VII, L.P.	$ 16.800,00	$ 300,00 (1,79%)	36	2011	Opportunistic	Distressed or non-stabilized real estate assets	Global
BREP VIII, L.P.	$ 15.800,00	$ 300,00 (1,90%)	15	2014	Opportunistic	Logistics sector with focus on turnarounds, undermanaged properties, debt deals and distressed selling	Global

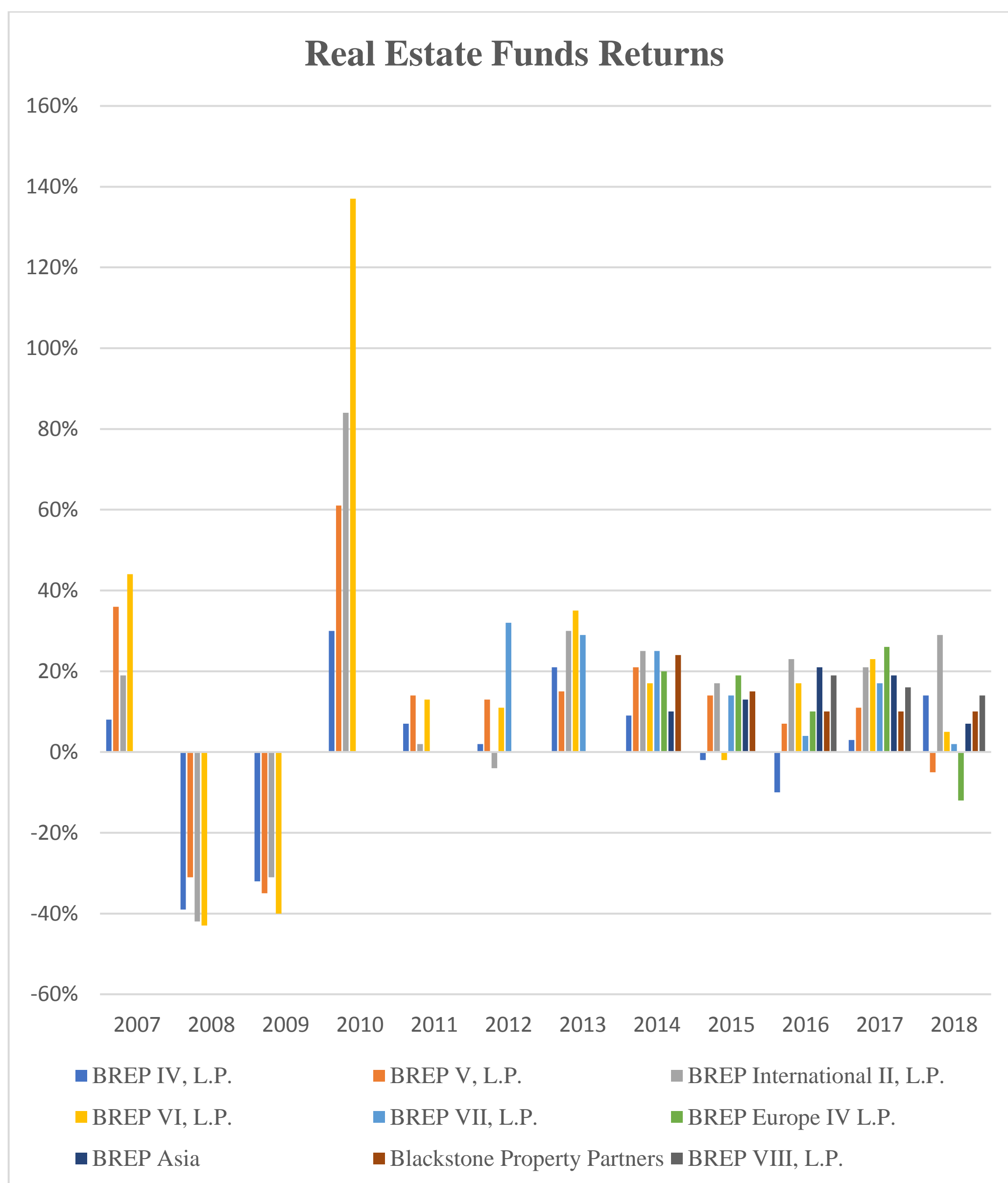
131 Carey and Morris, 2012.

Fund	Size	Original general partners commitments	Current portfolio companies (2019)	Vintage year	Primary Strategy	Investment criteria	Geographic focus
BPP	$ 12.000,00	$ 108,32 (0,90%)	12	2014	Core-Plus	Stable, well leased real estate that needs some repositioning	US and Canada
BREP VI, L.P.	$ 10.900,00	$ 750,00 (6,88%)	6	2007	Opportunistic	Recovering and repositioning	Global
BREP Europe IV L.P.	$ 8.800,00	$ 130,00 (1,48%)	25	2013	Opportunistic	Restructuring and recapitalization of high quality, large assets with complicated situations and limited competition	Europe
BREP V, L.P.	$ 5.250,00	$ 52,54 (1,00%)	2	2005	Opportunistic	All types of properties	Global
BREP Europe V L.P.	$ 5.200,00	$ 150,00 (2,88%)	2	2016	Opportunistic	All types of properties	Europe
BREP Asia	$ 5.000,00	$ 50,00 (1,00%)	7	2013	Opportunistic	All types of properties	Asia
BREP IV, L.P.	$ 2.050,00	$ 50,00 (2,44%)	2	2003	Opportunistic	Real estate repositioning, divestiture, acquisition + development and distressed assets	Europe
BREP International II, L.P.	$ 1.985,90	$ 25,99 (1,30%)	1	2005	Opportunistic	All types of properties	Europe
BREP III, L.P.	$ 1.500,00	NA	0	1998	Opportunistic	NA	NA
BREP II, L.P.	$ 1.100,00	NA	0	1996	Opportunistic	NA	NA
BREP, L.P.	$ 338,00	NA	3	1992	Opportunistic	NA	NA

Source: Elaboration of multiple Blackstone 10-K forms

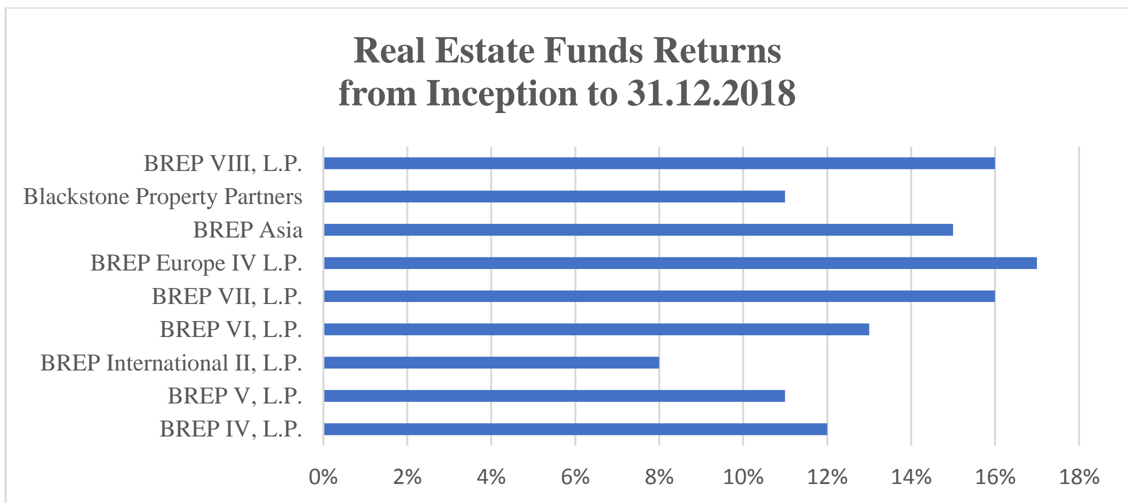
Blackstone real estate funds performances depend on the factors that affect investments in the real estate industry mentioned in section 4.1. Geographically focused funds[132] highly depends on the economic conditions of the relative local area. Moreover, since the BREP funds have an opportunistic primary strategy, they could be particularly affected by changes in interest rates and borrow capacity.

Figure 50: Net annual IRR[133] of Blackstone most relevant real estate funds



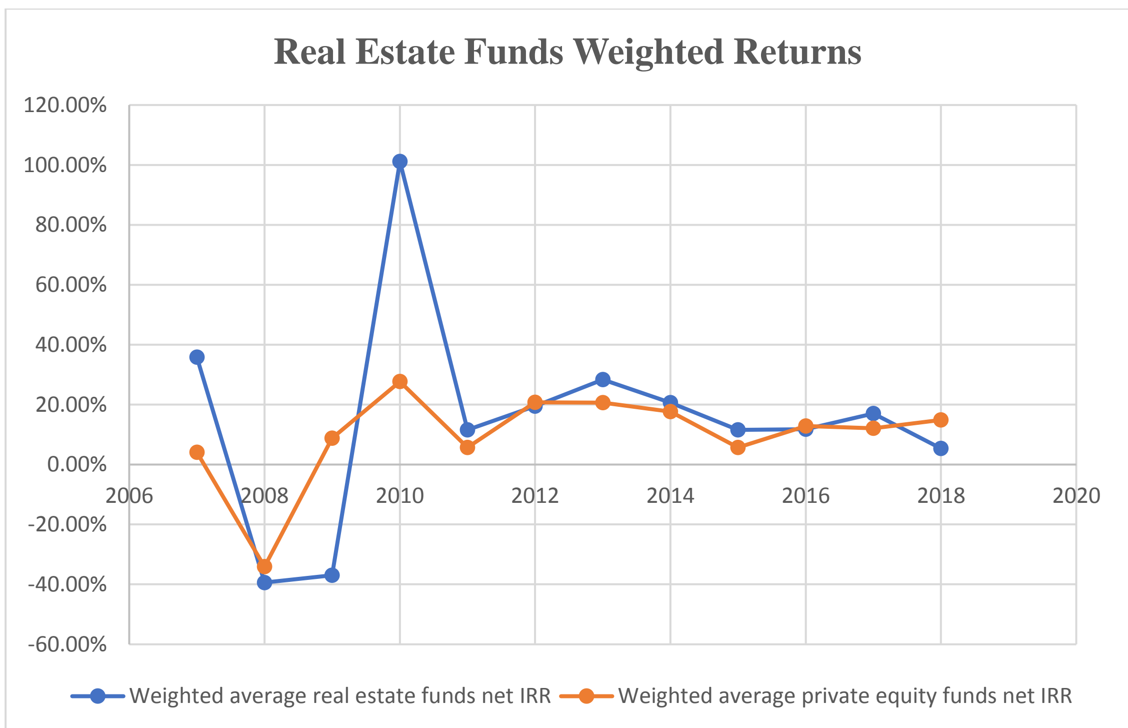
[132] BREP Europe and BREP Asia.

[133] Net returns are based on the change in carrying value (realized and unrealized) after management fees, expenses and Performance Revenues



Source: Elaboration of multiple Blackstone 10-K forms

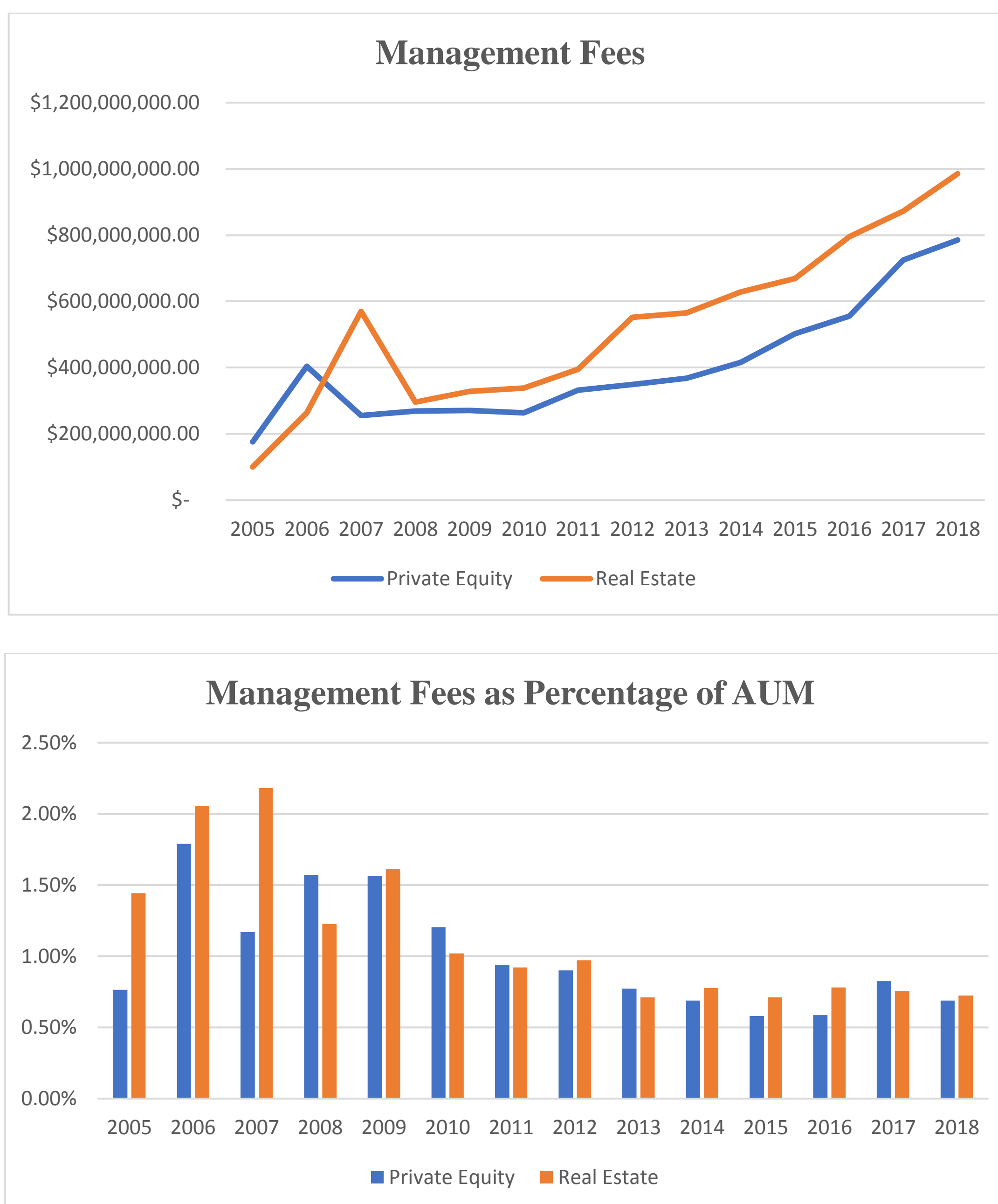
Figure 51: Net return weighted for the fund size of most relevant Blackstone Real Estate funds and Private Equity funds



Source: Elaboration of multiple Blackstone 10-K forms

Another method to compare the performances of Blackstone real estate investments and other private equity activities is to analyze the amount of management fees and investment income as done in the previous chapter.

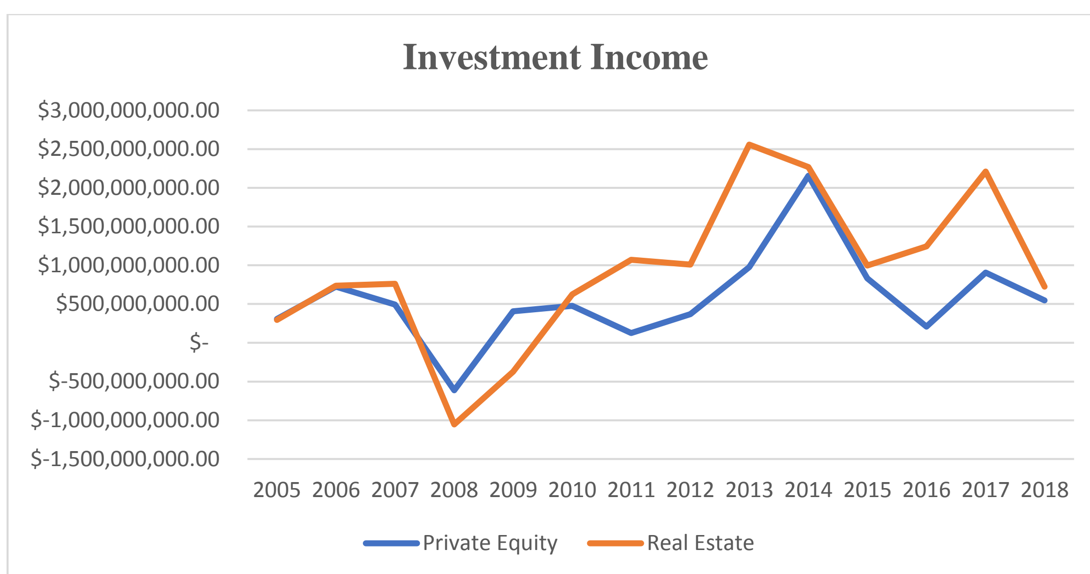
Figure 52: Blackstone total management fees for its private equity and real estate business lines, in dollars and as a percentage of relative AUM (2005-2018)

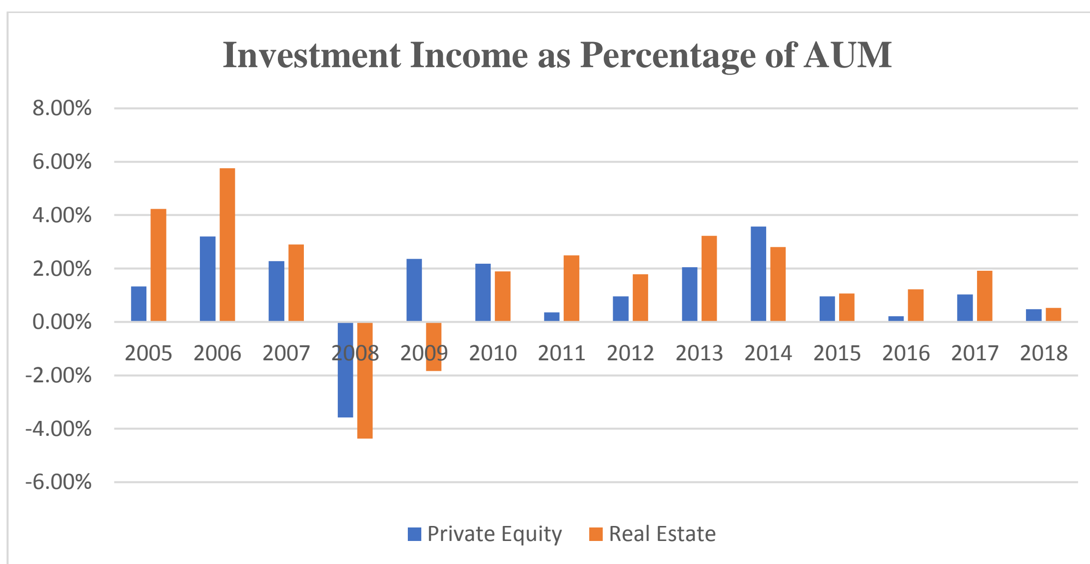


Source: Elaboration of multiple Blackstone 10-K forms

Blackstone receives more management fees from its real estate funds than from its private equity funds, both in absolute and relative terms. Consequently, limited partners face more costs while investing in real estate funds than in private equity funds. In order to establish if limited partners that invest in real estate funds are compensated for the higher costs, it is necessary to look at the investment income of both the business lines.

Figure 53: Blackstone investment income for its private equity and real estate business lines, in dollars and as a percentage of relative AUM (2005-2018)





Source: Elaboration of multiple Blackstone 10-K forms

The result is that on average Blackstone receives more investment income from real estate funds, but these are more affected by market conditions. Indeed, private equity funds performed better (or less bad) during years of recession. Excluding these years, it is possible to state that limited partners have been compensated for the higher management fees that they paid, investing in real estate funds.

In order to analyze Blackstone's real estate transactions, the analysis includes data of 236 deals from Capital IQ in the period from 2000 to 2018. Out of these, 129 were carried out by the subsidiary Blackstone Real Estate Advisors, and 107 were carried out by The Blackstone Group. The sample considers all the Blackstone deals in real estate and consumer discretionary industries with disclosed transaction size. Over 236 deals, 189 concern real estate operating companies or real estate assets.

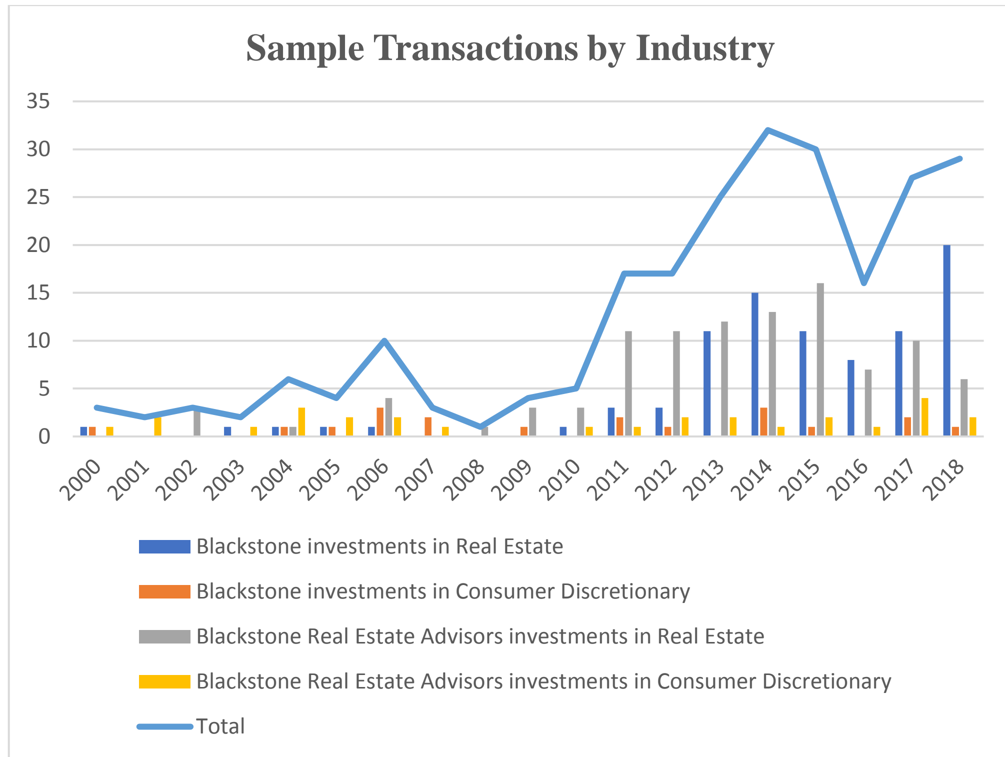
The other 47 are investments in consumer discretionary firms which include the following sectors:

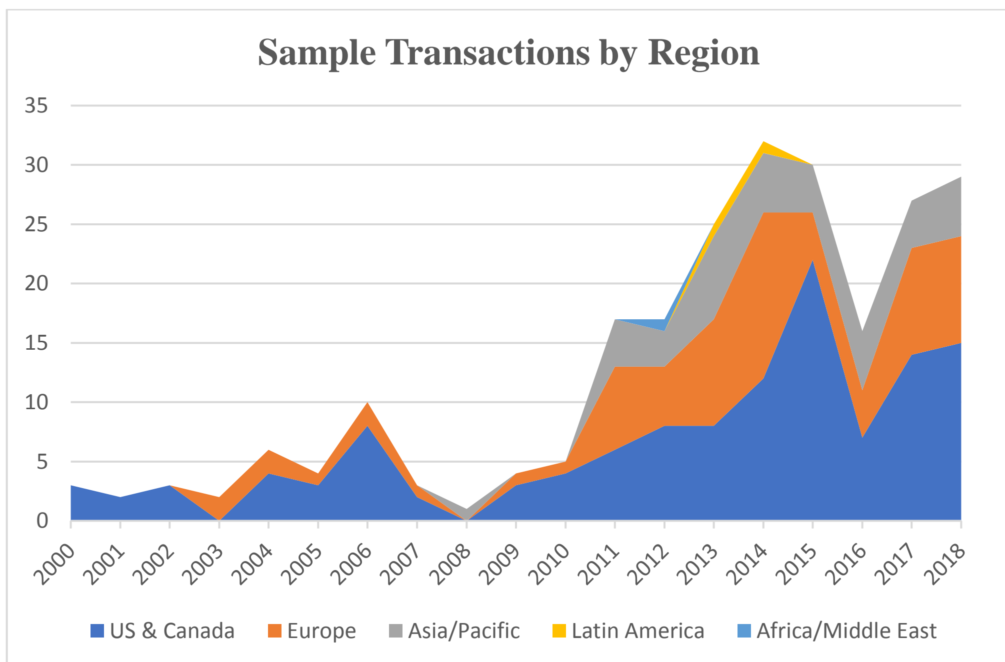
- Hotels, Resorts and Cruise lines
- Leisure Facilities
- Restaurants

Each transaction is temporally allocated in the year of the announcement. The total deals value is calculated as the sum in euro of single transactions, converted in US dollars with the average annual exchange rate[134]. Finally, the average transaction size is calculated as total deals value over the total number of transactions announced in the referring year. Most of the deals are carried out privately thanks to the Blackstone unique network of contacts in the real estate market that provides a high number of transactions. However, Blackstone faced significant competition for some of its biggest deals, like in the bidding war with Vornado Realty Trust to acquire Equity Office Properties.

[134] www.macrotrends.net.

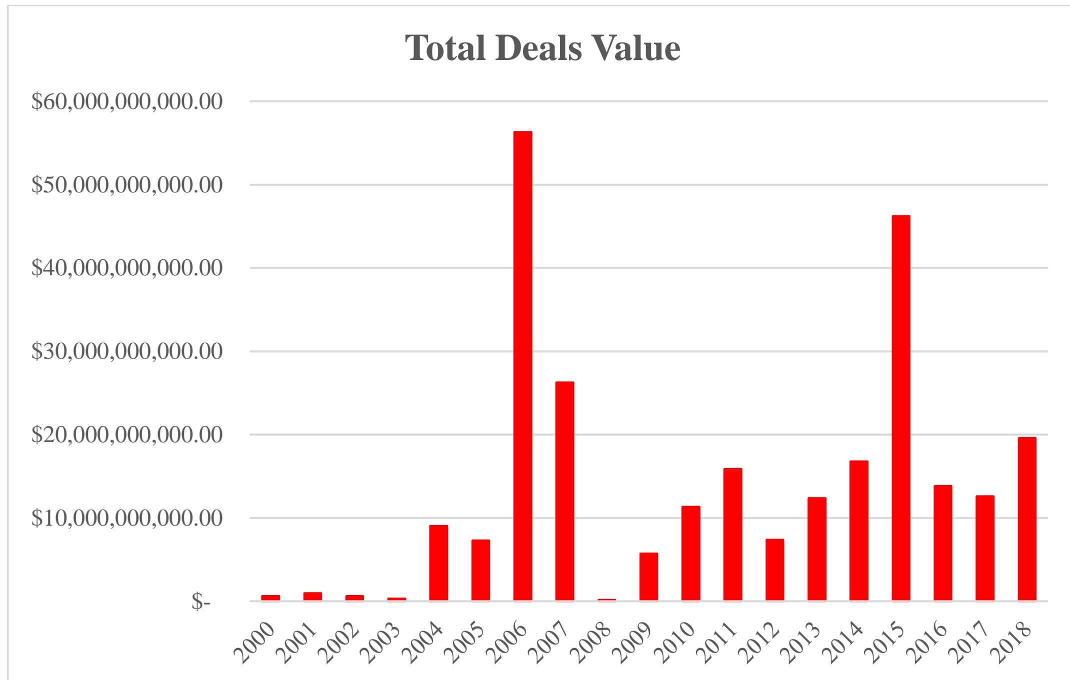
Figure 54: Total number of sample transactions by target industry





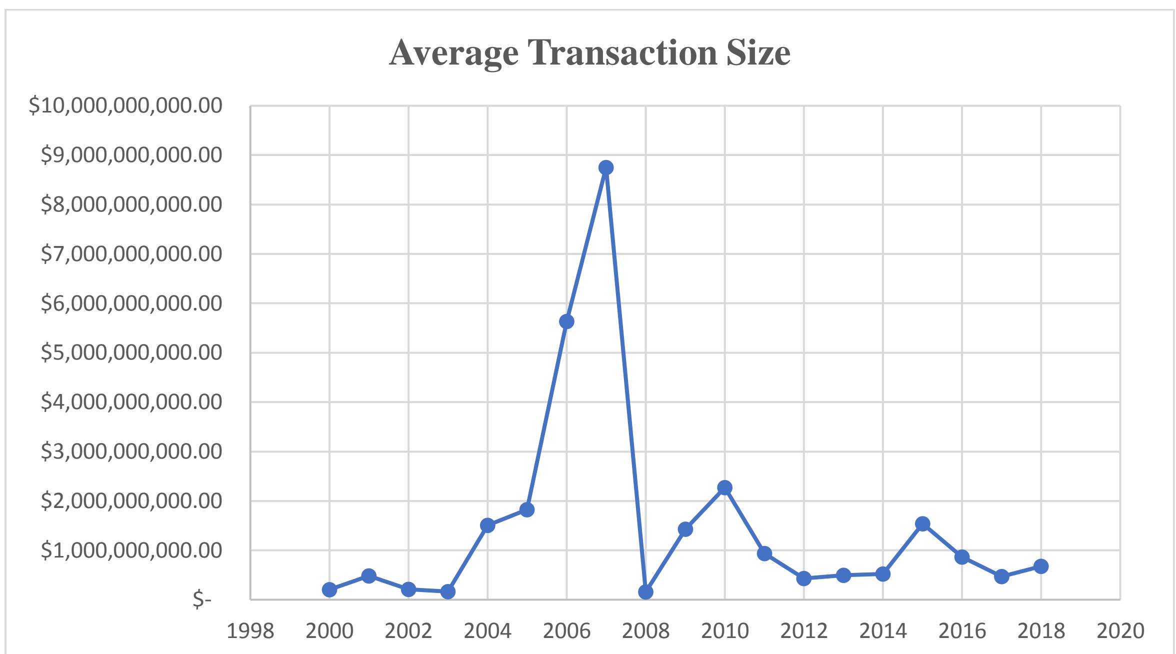
Source: Elaboration of Capital IQ dataset

Figure 55: Evolution of the total deals value of the sample transactions



Source: Elaboration of Capital IQ dataset

Figure 56: Sample average transaction size



Source: Elaboration of Capital IQ dataset

Among the sample transactions, there are some of the largest leveraged buyouts in the real estate industry ever completed, which have typically focused US companies.

Figure 57: Top 10 largest transactions[135] completed by Blackstone

Target company	Deal size	Announced Year	Region	Involved Funds
EQ Office	$ 36.324,63	2006	United States	BREP V, L.P.
Hilton Worldwide Holdings	$ 27.142,39	2007	United States	BREP V, L.P. BREP VI, L.P.
US Equity Assets, European Real Estate Assets, Performing First Mortgage Loans in Mexico and Australia	$ 9.539,67	2015	United States	BREP IV L.P. BREP VIII, L.P.
Brixmor Property Group Inc	$ 9.400,00	2011	United States	BREP VI, L.P.
Biomed Realty Trust Inc	$ 8.051,33	2015	United States	BREP VIII, L.P.
Gramercy Property Trust	$ 7.504,68	2018	United States	BREP VIII, L.P.
Brookfield Property REIT Inc	$ 6.300,00	2010	United States	BREP VI, L.P.
Michaels Stores Inc	$ 6.047,21	2006	United States	BREP V, L.P.
Strategic Hotels and Resorts LLC	$ 5.947,79	2015	United States	BREP VIII, L.P.
Officefirst Immobilien AG & CO KG	$ 5.840,16	2016	Europe	BREP IV L.P.

Source: Elaboration of Capital IQ dataset

[135] Deal sizes are in millions of US dollars.

The leveraged buyout of Equity Office Properties Trust is one of the largest in history, and it was the largest one at the time of the deal. Even for a company like Blackstone, it was a daring and complicated deal. Blackstone strategy was to set up a selloff plan which would have consisted of the disposal of all EOP assets in a few years.

The timing of the deal was perfect since, in that period, many publicly traded real estate companies were valued by the market at less than the sum of their parts. The office market had experienced a supply boom during previous years, and in 2006, the market was overheating. This effect was due to an explosive rise in construction costs right in those regions where EOP had the majority of its assets: the east coast and the west coast. Since the supply would not have expanded much more, Blackstone expected strong demand for existing offices and a rise in prices in the short term. At the end of 2006, EOP had $24,77 billion of total assets and $8,97 billion of equity.

The main risk was that Blackstone had only a short period for selling EOP assets. After the deal, EOP had $32 billion of debt on its balance sheet to be paid down in a short time. Therefore, Blackstone began to negotiate the assets with third parties before the acquisition was finalized. The deal, closed on 9th February 2007, after a bidding war between Blackstone and Vornado Realty Trust. The Blackstone offer was finally worth $36,3 billion.

The transaction was financed with $29,6 billion of debt, $3,2 billion of equity bridge, and $3,5 billion of equity. The equity stake was provided by the real estate fund: BREP V L.P. The debt was raised from Bearn Stearns, Bank of America and Goldman Sachs that also invested in the equity bridge. The terms of the loans were particularly easy, with minimal covenants. The agreement on the equity bridge included temporary payments to banks and a final premium cashable when Blackstone would have sold EOP assets.

Eventually, Blackstone had successfully completed all the expected sales and doubled the value of its equity stake before the end of 2007. Blackstone was successful in selling the majority of EOP assets before the recession. Sixty-five million square feet out of the overall EOP portfolio of approximately 100 million square feet were sold before 2008 for almost $30 billion.

During the crisis, when office space prices fall sharply, Blackstone suspended its selloff plan and focused on the restructuring of the debt. EOP assets sales began again in 2012 when the office market was partially recovered. In order to understand the performances of the deal, it is necessary to analyze the numbers of the selloff plan carried out by Blackstone in more than ten years.

Figure 58: Blackstone selloff[136] of EOP assets

Buildings	Square feet	Buyer	Sold price	Price per Square foot	Date
New York City	6.600.000,00	Macklowe Properties	$ 7.000,00	$ 1.060,61	02.09.2007
Atlanta	5.000.000,00	Barry Real Estate Companies	$ 1.000,00	$ 200,00	05.02.2007
Seattle	11.000.000,00	Beacon Capital	$ 6.350,00	$ 577,27	11.02.2007
Portland	4.200.000,00	Shorenstein Partners	$ 1.130,00	$ 269,05	13.02.2007
San Diego	2.100.000,00	The Irvine Company	$ 1.000,00	$ 476,19	15.02.2007
Orange County and Los Angeles	8.100.000,00	Maguire Properties	$ 2.875,00	$ 354,94	20.02.2007
Denver	2.700.000,00	Callahan Capital Partners	$ 800,00	$ 296,30	22.02.2007
San Francisco	4.149.000,00	Morgan Stanley	$ 2.800,00	$ 674,86	26.02.2007
Connecticut	1.600.000,00	RFR Reality	$ 850,00	$ 531,25	28.03.2007
Austin	3.485.000,00	Thomas Properties Group	$ 1.150,00	$ 329,99	29.03.2007
Sacramento	2.400.000,00	Hines	$ 760,00	$ 316,67	01.05.2007
Seattle	2.400.000,00	Archon Group	$ 921,00	$ 383,75	02.05.2007
Downtown Chicago	6.600.000,00	Tishman Speyer	$ 1.800,00	$ 272,73	04.09.2007
Suburban Chicago	4.600.000,00	GE Real Estate	$ 1.000,00	$ 217,39	13.09.2007
Santa Rosa	697.000,00	Basin Street Properties	$ 100,00	$ 143,47	10.10.2012
New Orleans	1.200.000,00	Feil Organization	$ 240,00	$ 200,00	17.06.2013
Pasadena	502.000,00	Prudential	$ 200,80	$ 400,00	04.08.2013
Wellesley	694.000,00	Manulife Financial Corporation	$ 237,00	$ 341,50	12.12.2013

[136] Sold Prices are in millions of US dollars.

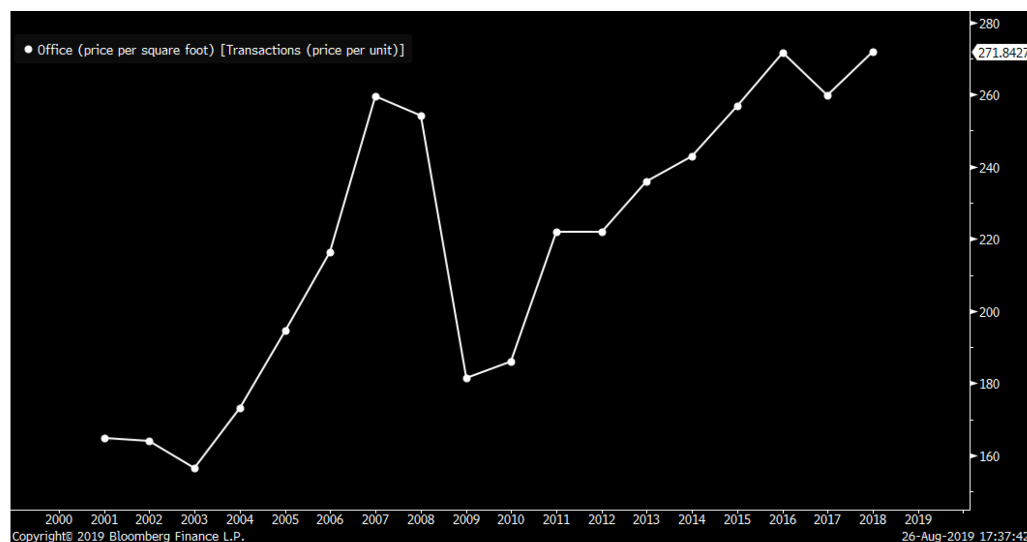
Cambridge	260.000,00	Jamestown	$ 193,00	$ 742,31	17.12.2013
Boston	3.200.000,00	Oxford Property Group/JP Morgan	$ 2.100,00	$ 656,25	18.05.2014
San Mateo	306.000,00	Rockpoint Group	$ 128,50	$ 419,93	18.09.2014
Silicon Valley	8.200.000,00	Hudson Pacific Properties	$ 3.500,00	$ 426,83	09.12.2014
Boston	1.100.000,00	Oxford Property Group/JP Morgan	$ 1.189,50	$ 1.081,36	13.05.2015
West Los Angeles	1.700.000,00	Douglass Emmett and Qatar Investment Authority	$ 1.340,00	$ 788,24	25.11.2015
Individual Properties	8.391.000,00	-	$ 5.761,16	$ 686,59	16.05.2007 - 10.10.2016
SanAmerica Center, Century City	524.748	JMB Financial Asvisors	$ 572,90	$ 1.091,80	30.03.2017
1221 Brickell, Miami	194.276,00	Rockpoint Group	$ 155,00	$ 797,83	26.04.2017
429 Santa Monica	87.000,00	Douglass Emmett Inc.	$ 104,8	$1.204,60	27.04.2017
Wilshire Palisades, Santa Monica	206.000,00	Douglass Emmett Inc.	$ 248,00	$1.203,88	27.04.2017
Arboretum Courtyard, Santa Monica	140.000,00	Tishman Speyer	$ 140,00	$1.000,00	10.08.2017
Glendale Office Buildings	212.200	Onni Group	$ 55,25	$ 260,36	27.11.2017
Santa Monica Business Park	1.200.000	Boston Properties	$ 616,00	$ 513,00	26.04.2018
San Francisco Ferry Building	-	Hudson Pacific, Allianz	$ 291,00	-	08.10.2018
Wells Fargo Center, Minneapolis	838.079,00	Starwood Capital Group	$ 314,00	$ 374,97	01.04.2019
TOTAL	94.586.303,00		$ 46.922,91	$ 496,08	

Source: Elaboration of data from www.behindthedeals.com and 2005 EOP 10-K Form

Today Blackstone still owns about 5 million square feet of EOP assets out of which approximately 22% are Boston office properties. If these assets are sold at the average sale price obtained by Blackstone of $ 496,08, they would be worth approximately $2,5 billion. In this case, the final proceeds of the overall selloff would be more than $48 billion, which corresponds to a total profit of $11,7 billion. From Figure 58, it is possible to observe that Blackstone made more sales in periods when real estate valuations were high: 2007 and 2014. Blackstone was successful is selling the less

exciting assets[137] before the recession. The price of these buildings could have been more vulnerable to economic turmoil.

Figure 59: Evolution of the average office price per square foot in North America (2001 – 2019)



Source: Bloomberg

The key determinants of office value can be resumed in three elements[138]:

- The total stock of office space, typically driven by the conditions of the constructions market
- Vacancy rates, sensitive to the real estate market cycle, in particular to interest rates
- Rents which depends on the proprietary characteristics such as age[139], size, location[140], maintenance and services

[137] Atlanta, Portland, Sacramento, Austin, and Denver.
[138] Rosen, 1984.
[139] Clapp, 1980.
[140] Brennan et al. 1984.

The second most relevant transaction struck by Blackstone is the leveraged buyout of Hilton Worldwide Holdings, announced on July 5th, 2007 and closed on October 24th, 2007. The peculiarity of this deal is that even if Blackstone went through terrible times with Hilton during the economic downturns, eventually it was able to make it the most profitable private equity deal of history after the last shares were sold in 2018. In 2007, Hilton Worldwide Holdings was the largest hotel group by room numbers with 497.738 rooms in 2.901 US hotels. However, at the time, the company was poorly managed, and the business had several expansion untapped possibilities in which Blackstone saw a profitable opportunity. Indeed, in 2006 Hilton acquired Hilton International, which owned the rights to the Hilton brand overseas, and faced a rating downgrading to "junk" from Moody`s.

The $27 billion acquisition was financed with $20,6 billion of debt provided by Bear Sterns, Bank of America, Deutsche Bank, Morgan Stanley, Goldman Sachs and $5,7 billion of equity invested by BREP V L.P. and BREP VI L.P. The expansion plan carried out by Blackstone included 50.000 new rooms a year for 2008 and 2009 in Italy, Turkey, and Asia to increase Hilton cash flows.

However, Hilton revenues were highly affected by travel activities which fall sharply during the crisis. A positive fact was that Blackstone had provided a financing package to issue in case of economic downturns since it is reasonable to expect cyclicality in the hotel business. However, the rescue package did not save Hilton from a restructuring. Blackstone had lost 70% of the value of its equity stake in Hilton by the end of 2009.

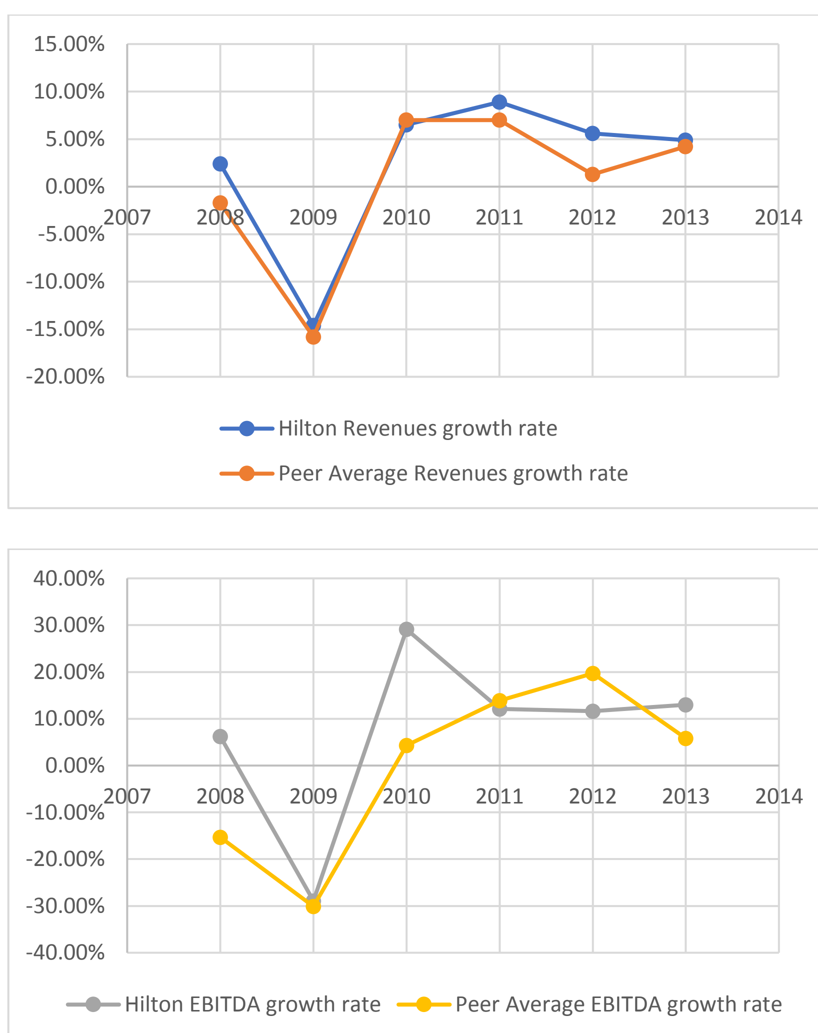
The turning point came in thanks to a debt restructuring in 2010 when Blackstone offered to lenders to buy back the debt at a discount. The timing for buying back its debt was perfect because the uncertainty on the debt markets had driven prices at a minimum, so many lenders accepted the Blackstone offer. Some lenders also converted their debt securities in preferred stocks, and eventually, the debt was brought from $20 billion to 16$ billion with an extended maturity by two years[141]. Blackstone also agreed to invest an additional $800 million to sustain the debt payments. At the same time,

[141] Phalippou, 2014.

Blackstone kept expanding the Hilton business, adopting a cheaper approach than owning property: the franchise agreements that perform better during recessions.

Thanks to this technique and the debt restructuring, Hilton outperformed its competitors during the crisis, achieving an annual revenue growth rate of 2,0% from 2007 to 2013 and became the largest hotel group of the world. Its EBITDA grew at an even higher rate: 5,5%, driven by profit grew of the franchise business line.

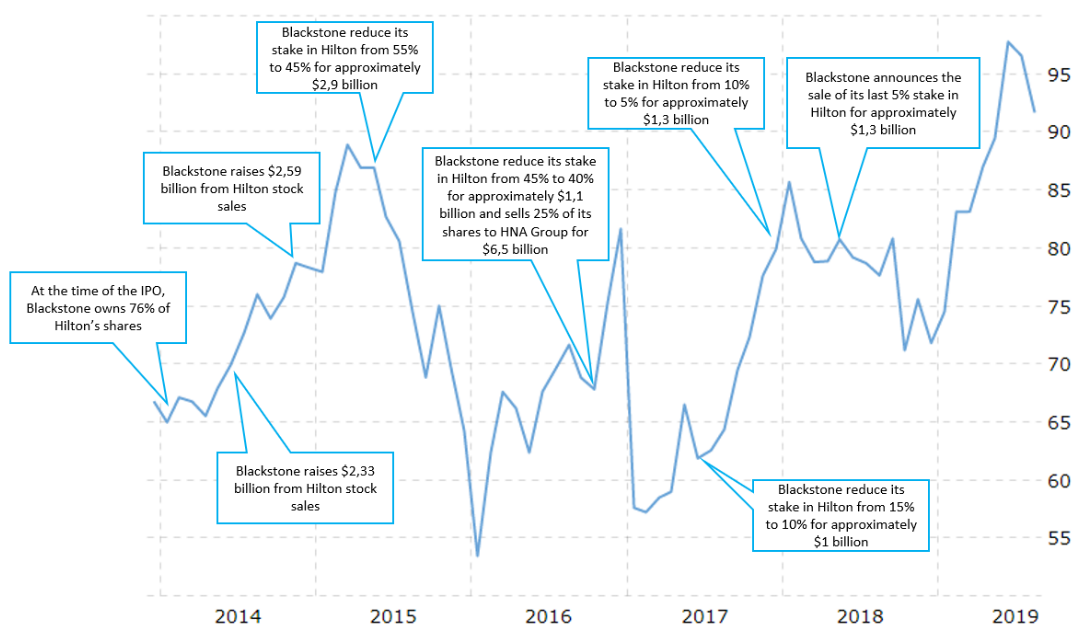
Figure 60: Revenues and EBITDA growth rates of Hilton and its main peer: Marriot, Starwood, and Choice



Source: Elaboration of company filings

In 2013, Hilton public listing valued the company at $34 billion; however, Blackstone did not sell any share in the IPO and continued to own most of Hilton voting rights. The selloff, instead, began in 2015 and was concluded in 2018 after 11 years of holding period and a profit of approximately $14 billion[142].

Figure 61: Evolution of Hilton share price with main events



Source: Elaboration of data from www.macrotrends.net and www.mergermarket.com

In the end, saving the Hilton deal was a combination of timing abilities, smart financial engineering, well-executed business improvements, and management discipline.

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142 Tan, 2018.

Conclusion

This thesis has investigated the methodologies that private equity firms use to fulfill their primary role of building value in portfolio firms. The history suggests that value-generating drivers do not follow any standard rules and have changed through times.

The private equity industry faced significant challenges in its path to becoming one of the leading businesses in the financial industry. The buyout market nearly collapsed during the crisis of the late 1980s, the burst of the internet bubble in 2000 and the subprime mortgage crisis began in 2007. Furthermore, the financial world had for long criticized private equity for the phenomenon of corporate riders and the bankruptcy of a few, but significant, corporations. In this sense, one of the most debatable transaction ever attempted is the acquisition of Toys “R” US by KKR, Bain, and Vornado, in 2005. The main reason why such deals go wrong is that the debt placed on the target company prevents substantial business refocus. As a result, if private equity firms invest in industries that are facing disruption, it is tough for them to gain a competitive advantage.

Despite this controversial path, nowadays, buyout companies have gained a good reputation among investment firms. Financial engineering was the primary source of value during the 1980s. In recent times, instead, private equity firms seek to create value through multiple arbitrage and business improvements. However, by the analysis of chapter 2, it is possible to conclude that the most critical drivers are strategic, governance, and operating enhancements. Indeed, timing and negotiation abilities help buyout firms to achieve abnormal profits in single transactions. On the other hand, business improvements build a positive track record, grow the business, attract new investors, and create the possibility to obtain valuable deals. These statements have consistency, assuming that the benefits that private equity firms bring in portfolio firms create a good reputation among banks, target companies, and financial advisors. However, it is necessary to confirm that also the corporate culture and human resources play an essential role in private equity.

The comparison between four of the most relevant private equity firms shows that the market leaders benefit from the same competitive advantages. The more remarkable are a healthy track record and a vast network of relationships among financial and target industries. Successful buyout companies also focus on building the suited mixture of financial and management expertise and retaining the talents that the labor market offers. However, the analyzed companies differ in terms of investment diversification and risk attitude. In terms of assets under management, Blackstone represents the market leader. By the analysis of private equity revenue items, it is possible to find out that Blackstone earns more management fees and investment income than its competitors. However, while comparing revenue items with AUM to obtain profitability ratios, Blackstone shows strong performances, but not in all the analyzed periods. The most interesting data is the profitability of Apollo investment income, which shows high returns, but also high volatility. These results are coherent with the contrarian investment strategy that characterizes Apollo. The implied volatility of sample firms shows strong inverse correlations with the performances of the debt market. Eventually, market returns have a high degree of correlation, suggesting that the market perceives these four firms as peers.

The results of the analysis of Blackstone investments in the real estate industry show that most of its funds follow an opportunistic strategy. Therefore, the value of investments in real estate is more sensitive to market conditions than investments of private equity funds. Blackstone also earn more management fees and investment income from real estate funds than from private equity funds. However, these costs for limited partners are well compensated since the return of real estate funds is substantially higher than the return of private equity funds. The subprime mortgages crisis had a high impact on Blackstone’s real estate investments and its operating method. In 2006 and 2007, Blackstone completed a few deals, with the most significant transaction sizes. In recent years, instead, Blackstone carried out a higher number of transactions of relatively smaller size. The two largest deals of Blackstone, Equity Office Properties and Hilton Worldwide Holdings, are two perfect examples of timing abilities and business improvements. In the acquisition of EOP, Blackstone was able to

sell most of the assets in periods of high property valuations and carry out the management of the deal through the credit crisis. On the other hand, in the Hilton deal, Blackstone was able to do the right enhancements and transform the company into the hotel market leader. Even in this case, Blackstone made it through the crisis, thanks to a well-negotiated debt restructuring. It is interesting to notice how Hilton ended up generating more profits than EOP, even if it was a much smaller transaction. This result is in line with the supremacy of business improvements on the other value drivers.

In the end, the success of Blackstone in real estate investing was crucial for becoming the first private equity firm. Its track record is by far the most compelling for real estate investors. Out of all its hundreds of deals, only a dozen ever lost money, and these were relatively small transactions. Nowadays, Blackstone has a unique reputation for being one of the best real estate investment firms. Moreover, the real estate unit also benefits from the experience of general partners, access to the largest private deals, and a rigorous due diligence process.

At the beginning of September 2019, Blackstone closed its ninth opportunistic real estate fund, BREP XI, raising $20,5 billion[143]. BREP XI is the largest commercial real estate fund ever raised. On 2nd June 2019, Blackstone announced the acquisition of 179 million square feet of infill logistics assets for a purchase price of $18,7 billion. This deal would be the third real estate transaction of Blackstone in size, after Hilton, and double the size of the actual Blackstone US industrial footprint. The development of future events will determine if Blackstone will manage to maintain its market leadership.

[143] Grant, 2019.

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Department of Economics and Finance

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"Value creation drivers of largest private equity funds: comparative analysis of Blackstone leveraged buyouts in the real estate industry"

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Introduction

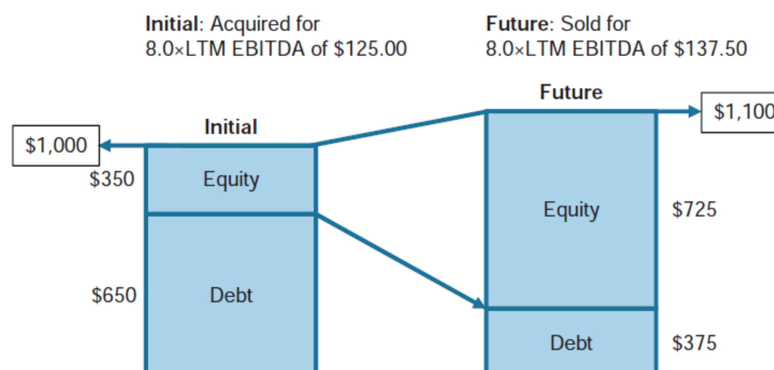
The business of private equity has become a fundamental component of our contemporary economy. Every year private equity firms raise thousands of funds, acquire thousands of companies, and invest trillions of US dollars. Since the 1980s, several investment firms have developed the art of leveraged buyouts: borrowing money to buy a company and eventually sell it at a profit a few years later. However, private equity activities have always been a controversial theme for the financial world. Indeed, private equity funds had for long operated in the shadows. Before many leading buyout companies went public in the late 2000s, funds' managers used to reveal just a few details of their deals.

This thesis aims to clarify what drives the success of the world's largest private equity funds. In this sense, it is essential to make a comparison between the leading private equity firms regarding metrics, operating models, and investment analyses. Moreover, in order to give a broad view of the private equity industry, it is necessary to deepen what are the most targeted and ideal industries where they invest. Therefore, investments in the real estate industries deserve particular attention for the high number of relevant leveraged buyouts in this sector. Consequently, it becomes of paramount importance to analyze the transactions of Blackstone, the undiscussed market leader of the private equity industry.

CHAPTER 1: Private equity industry overview

In a leveraged buyout, a private equity firm acquires a target company with secured debt and equity funding from institutional investors. The acquirer expects to generate a profit on the acquisition, which will outweigh the interest paid on the debt in order to generate a high return on equity, only risking a small amount of capital. The investment firm uses the assets of the target company as collateral for the loans. Consequently, the debt ends up on the balance sheet of the target company. Using leverage to finance the acquisition lower the Weighted Average Cost of Capital (WACC) of the target company because the cost of debt is lower than the cost of general partners` equity. As cash flows pay down the debt, the value of equity increases, and capital gains generate wealthy returns. This mechanism, called deleveraging, is the first technique that private equity firms use to achieve value creation.

Figure 1: IRR generating process through deleveraging in an LBO



Source: Training the Street, Inc.

The equity investment portion of acquisitions was historically related to the level of interest rates and the average quality of the debt offered by the markets, with an average of 30-40% equity and 60-70% debt. Higher is the debt level used to fund the transaction higher is the expected return of the buyer.
However, value is more often generated by operational improvements that depend on the characteristics of the target company. These enhancements may involve changing the management team of the business, selling off assets to unlock value or purchasing additional assets to make the core business more efficient. In general, the operations of the private equity firm on the target company aim to increase the profitability of the business or to expand the valuation multiples. Once the target company has gained enough value, the private equity firm will either sell off parts or all the owned shares and exit at a profit.
The first step for a successful LBO is to screen for the right target. The most important characteristic to look for in a target is the potential to generate stable and predictable cash flows. Cash flows are used to pay down the debt, and so their quality will determine the amount of leverage. General partners make forecasts about operational initiatives designed to increase cash flows post-acquisition. With forecasts on cash flows, it is possible to establish the amount of equity to invest, and the corresponding potential return based on the equity investment. Also, the capital expenditure required to operate the business is crucial as it consumes cash that could otherwise cover interest expenses. A clean balance sheet with a low amount of debt is also an ideal characteristic of a target company. For the private equity fund, it is crucial to consider the peculiarities that will make a good impression with lenders (banks). In this sense, essential characteristics are an efficient capital structure and a high amount of hard assets. The composition of the debt structure heavily influences how the target company runs its operations since interest costs are fixed costs for the business. The physical assets of the target company like machinery, inventory, receivables, and real estate serve as collateral for the bank debt. However, also intangible assets like brand names, goodwill, and human capital are essential considerations in an LBO. Intangible assets do not provide collateral value for loans but may have unrealized growth potentials.
Appetible targets are also public companies that are trading at a lower multiple to free cash flow as compared to a new and high growth industry. While an entity`s growth prospects are relevant, they are secondary to stability. A mature market with predictable demand, steady revenue, and no eminent game-changing is the ideal buyout environment. In such a case, the cash flows of the companies are likely to be more predictable.
On the other hand, successful private equity firms have funds managers with specific characteristics. General partners must regularly raise new funds in order to stay in business. The raising of a partnership is very costly and time-consuming and depends on their general reputation and experience. These features allow only private equity firms with the best reputation among investors to survive. The first key indicator of the managerial ability of general partners is a favorable track-record, which is an essential attractor of capitals for the private equity fund. After drawing capital from their fidelity investors, partnership managers will try to allow all potential investors to consider their participation in the fund. Consequently, they often raise capital in several stages.

CHAPTER 2: Leveraged buyout value drivers

Though history, the most valuable drivers have been operating, strategic, and governance enhancements. Thanks to these improvements, private equity companies have struck the most important deals of all time, gaining a positive reputation and the possibility to raise more and more funds. However, value drivers have changed over time. In the 1980s, the high leverage used thanks to the Drexel junk bonds made sure that private equity firms created gains through deleveraging and financial engineering. In the 1990s with no more junior debt available, multiple arbitrage and the business cycle benefits became more popular. Eventually, operational, strategic, and governance improvements became relevant in the 2000s. In these years, general partners turned their focus on making the target company a market leader, which is the most profitable possible result.

Figure 2: Evolution of value creation in private equity deals

Source: How Private Equity Firms Fuel Next-Level Creation. Brigl, Jansen, Schwetzler, Hammer and Hinrichs (2016)

The classical taxonomy of value drivers in private equity include direct drivers, indirect drivers, and value capture. Direct drivers, like financial engineering, operational and strategic enhancements, have a direct impact on financial multiples. Indirect drivers bring positive changes that affect profit margins in the long term. Indirect drivers are governance, cultural, and human drivers. In the end, value capture has been widely used by private equity funds since the first buyout activities. These drivers differ from direct and indirect drivers since value is not generated but captured from the market thanks to positive fluctuations of the business cycle or a favorable trend of the target industry. Value capture includes timing, multiple arbitrage, screening, and negotiation drivers.

The financial drivers of an LBOs rely on the capital structure of the deal. The core objective of the financial structure is to minimize the after-tax WACC of the target company by taking advantage of the fact that debt interest payments typically are tax-

deductible[1]. Buyout returns strongly depend on market conditions and debt market liquidity[2]. In general, if market conditions allow easy access to leverage, private equity funds will have an incentive to lever deals as much as possible. Therefore, the amount of debt raised by private equity funds is procyclical and reach peaks when credit market conditions are favorable. However, operating in a highly leveraged environment could be a favorable condition only before the debt market becomes overheated, causing the so-called "money chasing deals" phenomenon[3]. When the leverage buyouts market is saturated, there is high competition for a few investment opportunities, but there could be favorable credit conditions. Consequently, private equity returns tend to deteriorate, since buyout funds are induced to overpay for investments. In this case, an excellent private equity firm should refrain, as an increased competition tends to embitter covenant agreements and raise target shares prices[4]. Experienced general partners will exit their investments at high market valuations and complete a few deals in these kinds of periods, trying to pick only the most convenient companies.

In order to determine the acceptable debt – to – equity ratio, many factors should be considered. Debt should not impair the possibility of reacting with flexibility to changed market conditions[5]. Exogenous shocks are particularly risky for companies with a high level of leverage. The target company should be able to adapt to new market conditions at least as fast as peers in case of industry disruption.

In the end, debt represents a benefit only if increased leverage moves the firm towards an optimal debt-to-equity ratio. In order to assess if the debt will have a positive or negative effect, the private equity firm should find out if the target firm has any unused debt capacity or excess capital[6].

The high amount of debt issued in a leveraged buyout, represent an excellent solution to excesses of free cash flows, a problem raised in the Agency Theory[7]. Indeed, management can use excess cash flows to retain control of the company or to fund unprofitable investments. The excess of free cash flows is a particular issue for mature companies that generate steady revenues and have few remaining investment opportunities. These kinds of firms are typically companies in the steel, chemical, tobacco, paper, and textile industries[8]. When the private equity firm takes control of the portfolio firm, the excess free cash flows are paid out as interest expenses to debt holders or as dividends to equity holders and will no longer create inefficiencies[9].

Eventually, the reputation and expertise of general partners and board members of the target company play a critical role. As reported by Demiroglu & James (2007), the reputation of private equity firms is essential when credit risk spreads are low, and lending standards are lax.

[1] Hannus, 2015.
[2] Kaplan and Stein, 1993.
[3] Grompers and Lerner, 2000.
[4] Ljungqvist, Richardson, and Wolfenzon, 2007.
[5] Berck & DeMarzo, 2007.
[6] Jensen et al. 2006.
[7] Jensen and Meckling 1986.
[8] Eun & Resnick, 2011.
[9] Jensen, 1989.

Operational improvements split into two macro classes: cost savings and asset utilization enhancements. Cost savings consist of a reduction in capital expenditure and asset divestitures. Divestitures allow the target company to free up cash from curbed projects and redeploy it in investments with positive NPVs or productivity gains[10]. General partners can improve asset utilization through aggressive working capital management. Working capital is tied up in inventory, so general partners should be focused on reducing inventory levels in the post-buyout firm[11]. An efficient capital budgeting consists of minimizing account receivables and inventory while increasing the pace of collecting account payables. Aktas (2015) reports that the best way to manage working capital is to reduce the Cash Conversion Cycle (CCC). CCC is the time it takes for a company to convert its investments in inventory in cash resources.
Strategic drivers are carried out through strategic due diligence. This process consists of collecting data on the target industry, identify the key drivers of demand, and establish how they might behave in the future. The result of strategic due diligence is an active plan composed of 3-5 key initiatives. Ideally, these initiatives will help the target to reach his full potential, making the firm more valuable than what the standard operations and management could do.
The most common strategy is complexity reduction. If a target company shows several diversified business units unrelated to the core business, private equity firms will step in to sell off non-core assets, free up capital to invest in the core business and eventually make the portfolio company a market leader.
A reverse strategy is the buy and build. This strategy has the scope to expand the business through multiple horizontal acquisitions. At first, the private equity firm acquires a "platform" company in order to service as a starting base for further acquisitions ("add-ons"). With a buy and build strategy, the portfolio firm can take advantage of market consolidation, which allows cost reductions through scale economies[12]. Moreover, the add-ons can grow faster if the platform firm allows a shift of resources from firms with excess capacity to firms with too high asset utilization[13].
One last value-generating strategy consists of a focus on sales growth and market expansion. Successful growth moves consist of enhancing business key metrics like asset utilization, cash flow velocity, and customer performance[14].
Governance drivers rely on the ability of general partners to build up an efficient system of incentives. The right amount of incentives should be moderate enough to motivate management to enhance the value of their equity stakes as a result of their work. However, not always an efficient incentive system consists of providing management with higher equity ownership. The more significant is the equity stake owned by management, the more they are exposed to the risks of the investment. As a consequence, risk-averse managers could be discouraged from undertaking profitable initiatives[15]. Another governance enhancement is the restructuring of the board of

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[10] Wright, Thompson and Robbie, 1992.
[11] Easterwood et al., 1989.
[12] Baker, Gibbons, & Murphy, 1994.
[13] Borell and Heger, 2013.
[14] McGrath and MacMillan 2005.
[15] Demsetz, 1983.

directors. The board of directors should be composed of 5 – 7 members, out of which one or two should be general partners of the private equity firm[16].
The private equity culture could also have an impact on a portfolio firm's productivity by spreading result-oriented behaviors among management and employees. The set-up of an efficient system of monitoring and mentoring in the target company is the first crucial step. The most efficient and profitable approach is to adopt an active ownership model with direct communications between general partners and the managers of the portfolio company. The main advantage of an efficient flow of information from management to general partners is a lower level of inefficient bureaucracy[17].
There are three essential features that a private equity monitoring system should always include. These are the use of subscription agreements, the control through an effective audit system, and the presence of non-executive directors[18].
Several positive effects may also derive from improved relations among employees resulting from investments in human resources. Largest private equity firms also tend to set more ambitious objectives that spur the management to work efficiently.
The last set of drivers derive from the ability of general partners to capture the highest possible value of a portfolio firm in the financial markets.
Since private equity firms look at the returns in the long term, the temporal collocation of the deal is of paramount importance. LBOs returns are driven by high GDP growth rates, high equity returns, low credit spreads, and low corporate bond yields[19]. The entry timing should be established by looking at the current stock valuations, and avoiding overinvestments when valuations are too high. Timing skills are particularly crucial for funds that invest in cyclical sectors like chemicals, energy, and telecommunications [20].
The holding period choice is a relevant decision for all funds. The average holding period is about 6-9 years. It has been reported[21] that there is a negative correlation between leveraged buyout returns and holding period. The so-called quick flips show the highest returns. Quick flips are deals exited before two years of holding period. This evidence suggests that intensive financial and operational therapies carried out in few years are an authoritative source of value. This boost may also come from the market itself, which looks positively at quick and successful deals.
Value capture may also derive from arbitrage opportunities. At some point in time, a firm is valued differently from different buyers, allowing a buy-sell spread that private equity firms can easily extract through a leveraged buyout. Among those arbitrage opportunities, the ones that create more value for private equity firms are the ones generated by growth industries or business cycles[22]. Multiple arbitrage, in this case, could be a good explanation of the success of quick flips. Some studies report that multiple expansion is more effective for deals entered during times of economic downturn[23].

[16] Hannus, 2015.
[17] Kester and Leuhrman, 1995.
[18] Bygrave et al. 1999.
[19] Phallipou and Zollo, 2005.
[20] Cornelius et al., 2009.
[21] Lopez – De-Silanes et al. 2011.
[22] Hannus, 2015.
[23] Achleitner, A.–K., Braun, R., & Engel, 2011.

In a leveraged buyout, the identification of the right target can play an essential role in the success of the deal. The empirical evidence suggests that private equity targets are particularly diversified[24]. However, some industries have been more targeted and have generated higher returns than others. Another factor that private equity firms should consider in the screening process is the source of the deal. While the source with the highest utilization is the general partners' network, the one that offers the highest average IRR is a proactive approach[25]. The main reason is that a proactive approach allows general partners to identify a deal that has not been recognized by other bidders already[26]. Indeed, deals discovered through the general partners' network may lead to less analysis of value potentials if general partners have a deep trust in their contacts. Consequently, the fund may pick up a non-convenient deal.

The entry mode could also be an essential source of value. Auctioned deals present higher returns than deals with other entry modes, as only most attracting deals are negotiated in an auction. At this stage, the choice of the advisor is critical for the success of the deal and the post-transaction performance. The reputation of the buy-side advisor does not affect deal prices, and so does not add benefits to the buyer[27]. However, top tier private equity firms may obtain a favorable purchase price if they have a strong relationship with the advisor on the sell-side. One explanatory fact could be the presence of conflicts of interest if the sell-side advisor intends to keep a good relationship with the private equity firm for future business. Sell-side advisors also have more trust in clients with whom they have worked well in the past and know that they will close the transaction quickly. These evidences remark the importance of the contact network for a private equity firm.

One last important value capture driver is the possible exit mode. The literature suggests that most private equity firms exit their deals through trade sales[28]. However, deals exited through an IPO are the largest transactions, the least leveraged and the most profitable.

CHAPTER 3: Comparative analysis of the largest private equity firms

This chapter consists of an analysis of the top tier private equity firms, chosen by the relevance of their transactions, the size of their funds, and their investment criteria. Therefore, the sample is composed of four public investment firms: The Blackstone Group, KKR & Co., The Carlyle Group, and Apollo Global Management.

By the first comparison of these four firms, it is possible to make some initial considerations about their investment model. KKR has the most diversified business among different industries with significant investments in all sectors. Blackstone is highly focused on real estate with several real estate transactions that exceed the total number of deals in other sectors. Carlyle completed the highest number of transactions in the referring period, has a well-diversified portfolio, and invested a lot in defense,

[24] Opler and Titman, 1993.
[25] A proactive approach also presents the highest volatility.
[26] Fox and Marcus, 1992.
[27] McLaughin, 1990.
[28] Chapman and Klein 2009.

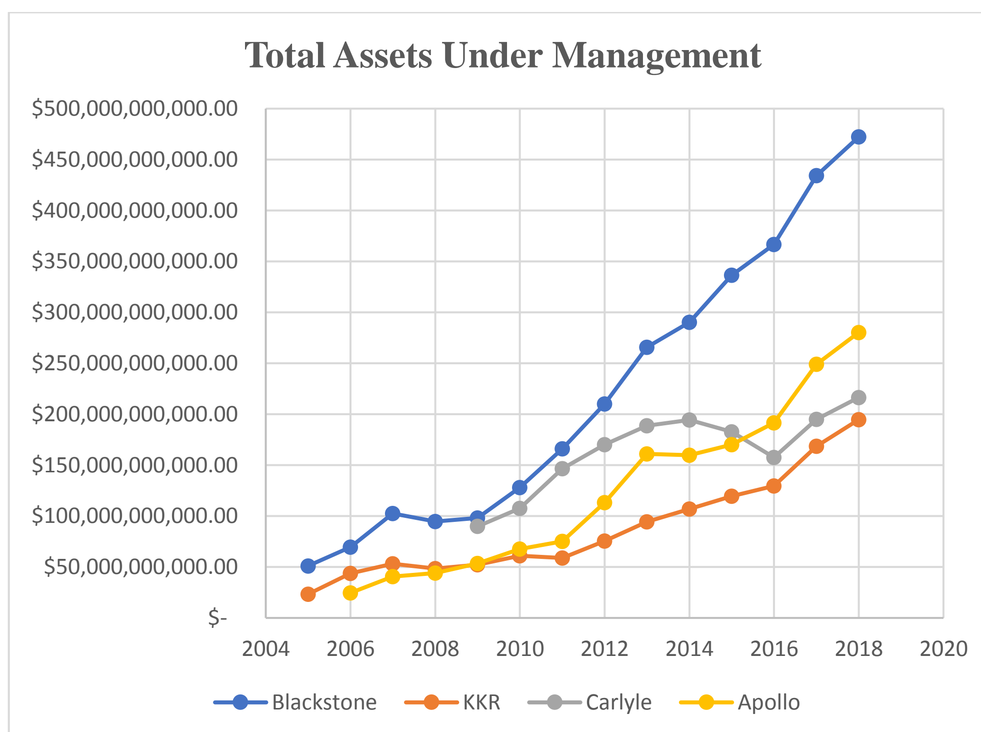
aerospace, and information technology companies. Apollo is the only firm that has significant investments in financial companies.

The geographic focus is similar for all four private equity firms. Investments in Europe began in the year 2000 and became more and more substantial through time, until in 2018 almost equaled investments in North America. Carlyle was the first company to carry out deals in Asia, in 2000, while Blackstone and KKR started investing in this region in 2006. Investments in Europe and North America have always been more numerous than investments in Asia for all these firms. Apollo, instead, is the only firm with few deals in Asia.

In terms of transactions, Carlyle has historically been the most active company with record highs in 2006 and 2007. However, unlike other firms, Carlyle had a decline in deal numbers from 2007 to 2018. On the other hand, Apollo is the firm that completed the lowest number of deals, with no more than 20 deals per year, but with large sizes.

The hiring and training processes of these four firms are in general similar and rely on the selection of highly motivated finance talents with the preference of in-house training of young professionals and significant compensation packages. However, each firm has at least one unique element of corporate governance and human resources management.

Figure 3: Blackstone, KKR, Carlyle[29], and Apollo Total AUM (2005-2018).



Source: Elaboration of 10-K forms of sample companies

[29] Data of Carlyle are disclosed from 2009.

In terms of AUM, Blackstone is by far the largest private equity firm. However, the 4 sample investment firms have private equity units that are similar in sizes but have a different focus and investment styles. Moreover, they differ on other business lines, in particular, regards the Blackstone focus on its real estate unit and Apollo focus on its Credit unit. In order to establish which structure is more effective, it is necessary to look at historical performances and fees of sample firms. In a private equity firm income statement, the revenues' most relevant items are Management Fees and Investment Income, while expenses are for the majority salaries and employees' benefits.

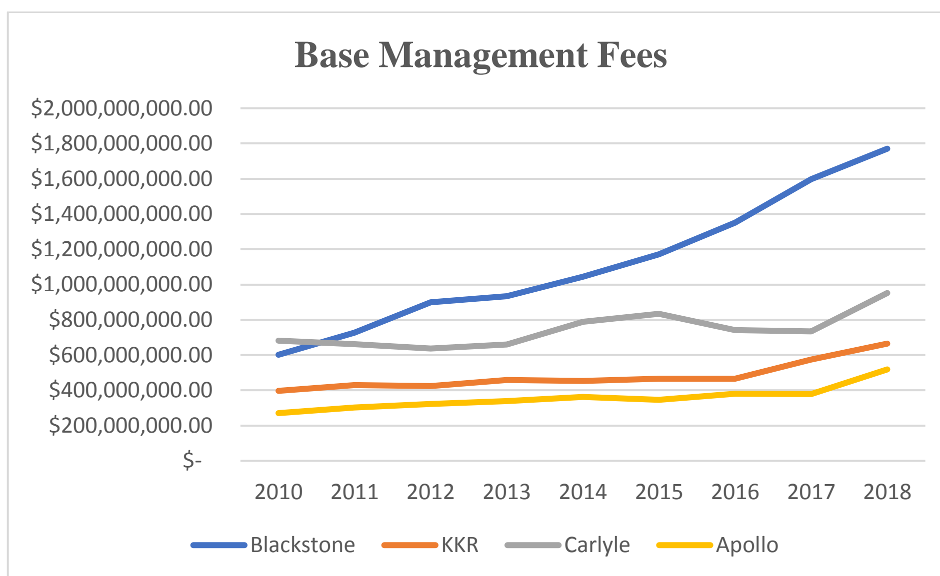
Management fees depend on:

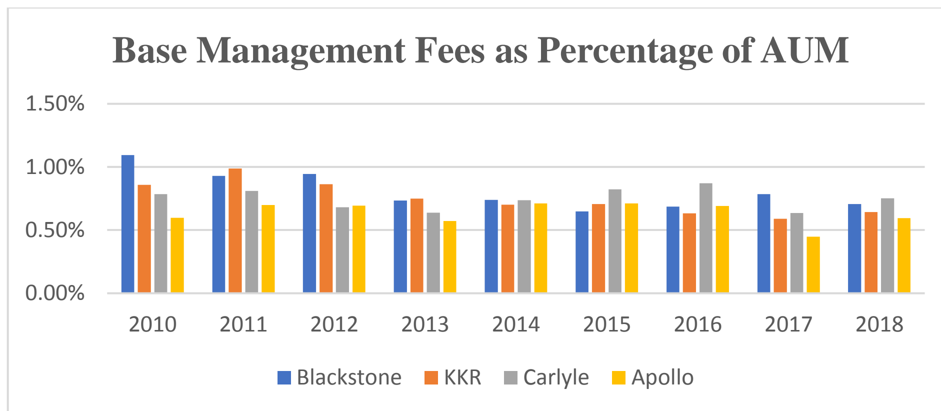
- the partnership agreement, in particular on the percentage of the management fee that general partners require and negotiate with limited partners
- the amount of total AUM
- the type of assets targeted, and in particular the risks associated with the investments

Investment Income includes:

- carried interest (Performance Allocation) which depend on the fund's net returns
- gains or losses on investments, resulting from capital appreciation or depreciation of general partners' investments in the firm funds

Figure 4: Blackstone, KKR, Carlyle, and Apollo total management fees, in dollars and as a percentage of private equity and real estate AUM (2010-2018).



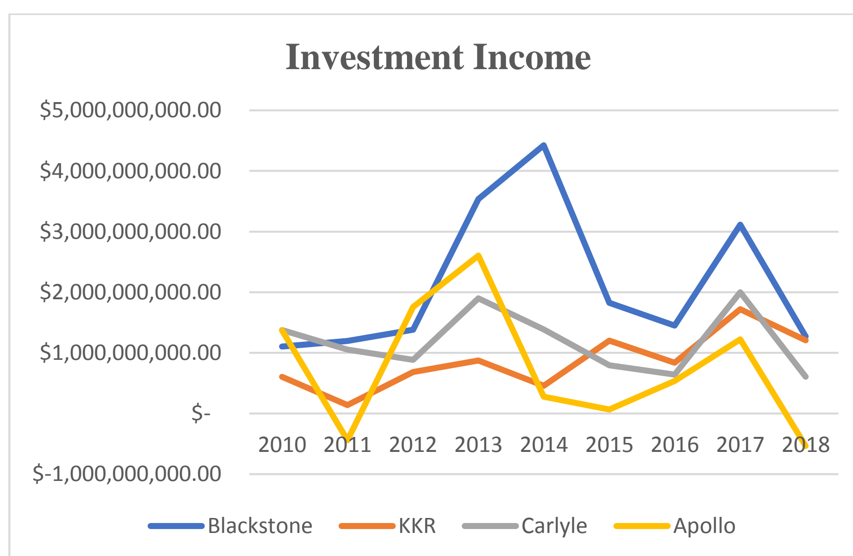


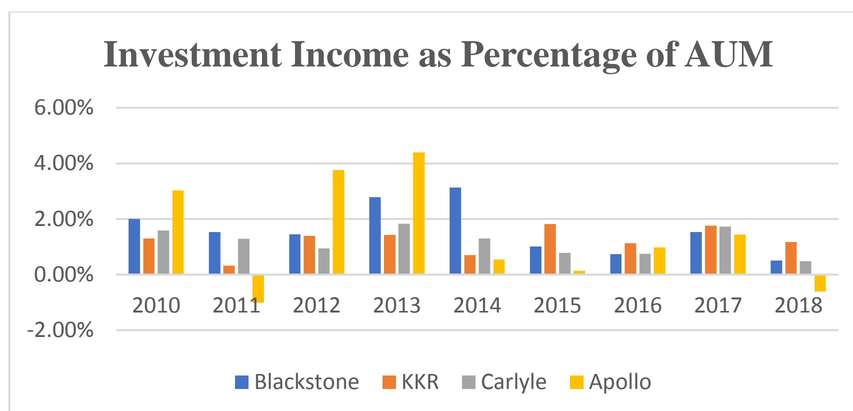
Source: Elaboration of 10-K forms of sample companies

A sustained growth in management fees is a good indicator of expansion since management fees are calculated on capital commitments to funds. Moreover, changes in management fees as a percentage of AUM stands for changes in the costs that limited partners pay for managing funds' assets. A declining could indicate that the new funds of the firm require less management fees or that limited partners prefer to invest in funds with lower management fees.

Investment income is mostly composed of carried interest and, in a smaller measure, of profit from investment activities. Investment income considers both realized and unrealized gains and is a good measure of investment's performances. While comparing investment income with AUM, it is possible to observe what are the funds' results compared to the initial investments.

Figure 5: Blackstone, KKR, Carlyle, and Apollo total investment income, in dollars and as a percentage of private equity and real estate AUM (2010-2018).





Source: Elaboration of 10-K forms of sample companies

Finally, while looking at market returns of traded stocks, the sample firms show a high degree of correlation. Indeed, these investment firms have several common factors that affect their returns. The principal factors are the level of interest rates, the average conditions of credit terms, and the average prices of target companies shares. Even if the sample firms have different business lines and different portfolio diversification, the market perceives them as direct competitors. This statement is even more evident while looking at the implied volatility of share prices. Moreover, the volatility of private equity firms is profoundly affected by the conditions of the global credit market. Therefore, the volatility has significant increases during periods of declining credit indices. This fact suggests that volatility depends on the investment strategies and the degree of leverage of private equity firms. As an instance, during the second half of 2013, when the credit market was suffering, Apollo had higher volatility than its competitors. This effect could be explained by the large investments of Apollo credit unit, for a total increase of 56,6% in AUM[30]. The increase is coherent with Apollo's strategy to invest in periods of uncertainty. Another interesting period to examine was the beginning of 2016 when several economic events increased the overall market volatility. The most affected firm was Carlyle for several reasons. Carlyle had historically been the company with more investment in Asia and the industrial sector. At the end of 2015, in China, there was a significant reduction in the capital spending of business operating in energy, metals and mining industries, due to low commodities prices, in particular, oil and gas prices. These events caused significant reductions in Carlyle funds appreciation and a significant decrease in its private equity AUM.

[30] Apollo Global Management Form 10-K, 2013.

CHAPTER 4: Private equity investing in real estate properties: the Blackstone case

While investing in real estate, general partners focus on two primary value sources: improvements in real estate assets and business cycle benefits. Compared to other private equity investments, investments in real estate are typically more leveraged with an average debt ratio of 75% and have a more extended holding period: 6-8 years[31].

One of the most relevant strategies of real estate leveraged buyouts is the so-called Buy wholesale and sell retail. This strategy consists of buying a Real Estate Investment Trust (REIT) and then sells its properties to multiple investors. This market operation will return a profit if there is an arbitrage opportunity when the REIT is valued less than what different buyers will pay for the sum of its assets. Real estate funds have different primary strategies depending on the levels of risks and returns of investments and on the assets that they target. Opportunistic funds have a lower median return rate than value-added and core-plus funds. However, for the period from 2010 to 2015, the median return of opportunistic funds is higher than any other[32]. These results suggest that opportunistic funds suffered more during the economic recession, which is reasonable considering that they are more leveraged than other funds. Another interesting point is the low standard deviation of investments in distressed real estate assets. Indeed, many distressed assets are high-quality assets that suffer particular situations like foreclosure. These properties could be safer than other properties after recovery or repositioning.

The Blackstone Real Estate Group was founded in 1991. In 2018, it was ranked the third real estate investment manager of the world, with $136,2 billion of assets under management. Its real estate funds invest in opportunistic real estate assets that include hotels, office buildings, industrial assets, residential, shopping centers, and real estate operating companies. However, in recent times Blackstone has also launched three real estate debt investment funds and two core-plus real estate funds.

Blackstone investments in real estate seek to acquire high quality, well-located yet undermanaged assets. Its relationships within the industry allow Blackstone to obtain large and exclusive deals, execute investments quickly, and secure a favorable price. Compared to other private equity firms, Blackstone has a more articulated system of deals review. The approval involves both review committees and investment committees, depending on the size, region, and type of investment. The committees evaluate a potential portfolio firm relying on the quality of the real estate assets, their conditions, exit strategies, risk factors, economic and political macro trends. The fact that these committees, which include a wide mixture of real estate and investing expertise, review a high number of deals allows Blackstone funds to invest in a numerous, yet high-quality, real estate assets.

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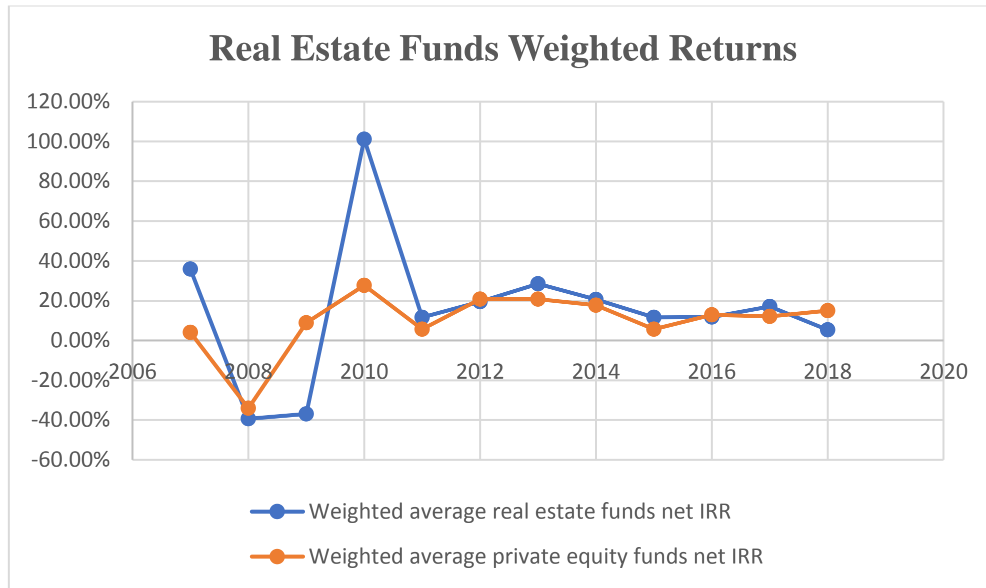
[31] Phallipou, 2014.

[32] Opportunistic: 15,6%; value-added: 15,4%; core-plus: 12,5%, according to Preqin.

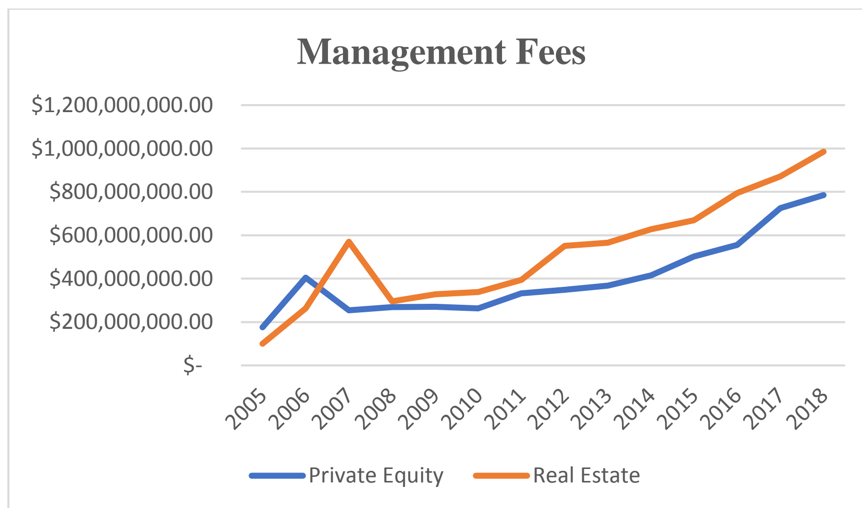
Figure 51: Net return weighted for the fund size of most relevant Blackstone Real Estate funds and Private Equity funds

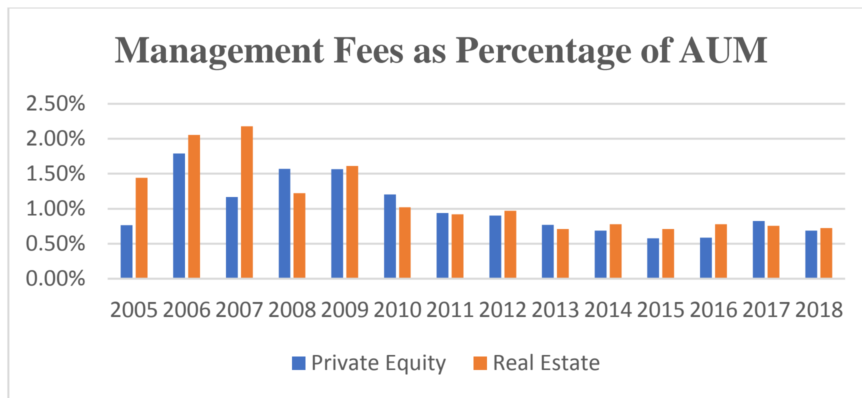


Source: Elaboration of multiple Blackstone 10-K forms

Another method to compare the performances of Blackstone real estate investments and other private equity activities is to analyze the amount of management fees and investment income as done in the previous chapter.

Figure 52: Blackstone total management fees for its private equity and real estate business lines, in dollars and as a percentage of relative AUM (2005-2018).

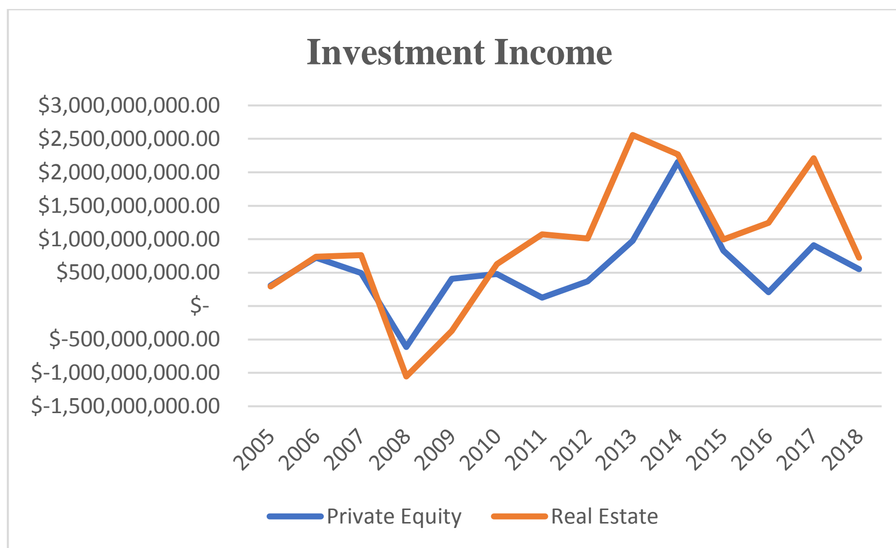


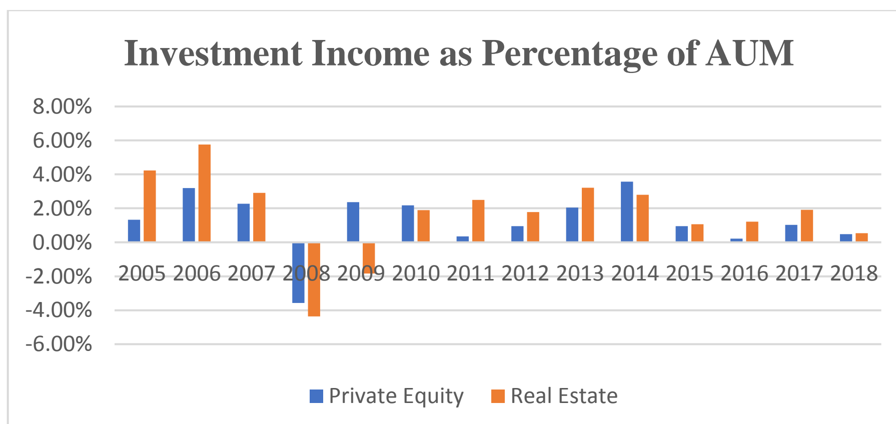


Source: Elaboration of multiple Blackstone 10-K forms

Blackstone receives more management fees from its real estate funds than from its private equity funds, both in absolute and relative terms. Consequently, limited partners face more costs while investing in real estate funds than in private equity funds.

Figure 53: Blackstone investment income for its private equity and real estate business lines, in dollars and as a percentage of relative AUM (2005-2018).





Source: Elaboration of multiple Blackstone 10-K forms

The result is that on average Blackstone receives more investment income from real estate funds, but these are more affected by market conditions. Indeed, private equity funds performed better (or less bad) during years of recession. Excluding these years, it is possible to state that limited partners have been compensated for the higher management fees that they paid, investing in real estate funds.

The two largest deals of Blackstone, Equity Office Properties and Hilton Worldwide Holdings, are two perfect examples of timing abilities and business improvements. In the acquisition of EOP, Blackstone was able to sell most of the assets in periods of high property valuations and carry out the management of the deal through the credit crisis. On the other hand, in the Hilton deal, Blackstone was able to do the right enhancements and transform the company into the hotel market leader. Even in this case, Blackstone made it through the crisis, thanks to a well-negotiated debt restructuring. It is interesting to notice how Hilton ended up generating more profits than EOP, even if it was a much smaller transaction. This result is in line with the supremacy of business improvements on the other value drivers.

Conclusion

This thesis has investigated the methodologies that private equity firms use to fulfill their primary role of building value in portfolio firms. The history suggests that value-generating drivers do not follow any standard rules and have changed through times.

The private equity industry faced significant challenges in its path to becoming one of the leading businesses in the financial industry. The buyout market nearly collapsed during the crisis of the late 1980s, the burst of the internet bubble in 2000 and the subprime mortgage crisis began in 2007. Furthermore, the financial world had for long criticized private equity for the phenomenon of corporate riders and the bankruptcy of a few, but significant, corporations. In this sense, one of the most debatable transaction ever attempted is the acquisition of Toys “R” US by KKR, Bain, and Vornado, in 2005. The main reason why such deals go wrong is that the debt placed on the target company prevents substantial business refocus. As a result, if private equity firms invest in industries that are facing disruption, it is tough for them to gain a competitive advantage.

Despite this controversial path, nowadays, buyout companies have gained a good reputation among investment firms. Financial engineering was the primary source of value during the 1980s. In recent times, instead, private equity firms seek to create value through multiple arbitrage and business improvements. However, by the analysis of chapter 2, it is possible to conclude that the most critical drivers are strategic, governance, and operating enhancements. Indeed, timing and negotiation abilities help buyout firms to achieve abnormal profits in single transactions. On the other hand, business improvements build a positive track record, grow the business, attract new investors, and create the possibility to obtain valuable deals. These statements have consistency, assuming that the benefits that private equity firms bring in portfolio firms create a good reputation among banks, target companies, and financial advisors. However, it is necessary to confirm that also the corporate culture and human resources play an essential role in private equity.

The comparison between four of the most relevant private equity firms shows that the market leaders benefit from the same competitive advantages. The more remarkable are a healthy track record and a vast network of relationships among financial and target industries. Successful buyout companies also focus on building the suited mixture of financial and management expertise and retaining the talents that the labor market offers. However, the analyzed companies differ in terms of investment diversification and risk attitude. In terms of assets under management, Blackstone represents the market leader. By the analysis of private equity revenue items, it is possible to find out that Blackstone earns more management fees and investment income than its competitors. However, while comparing revenue items with AUM to obtain profitability ratios, Blackstone shows strong performances, but not in all the periods analyzed. The most interesting data is the profitability of Apollo investment income, which show high returns, but also high volatility. These results are coherent with the contrarian investment strategy that characterizes Apollo. The implied volatility of sample firms shows strong inverse correlations with the performances of the debt market. Eventually, market returns have a high degree of correlation, suggesting that the market perceives these four firms as peers.

The results of the analysis of Blackstone investments in the real estate industry show that most of its funds follow an opportunistic strategy. Therefore, the value of investments in real estate is more sensitive to market conditions than investments of private equity funds. Blackstone also earn more management fees and investment income from real estate funds than from private equity funds. However, these costs for limited partners are well compensated since the return of real estate funds is substantially higher than the return of private equity funds. The subprime mortgages crisis had a high impact on Blackstone’s real estate investments and its operating method. In 2006 and 2007, Blackstone completed a few deals, with the most significant transaction size. In recent years, instead, Blackstone carried out a higher number of transactions of relatively smaller size.

In the end, the success of Blackstone in real estate investing was crucial for becoming the first private equity firm. Its track record is by far the most compelling for real estate investors. Out of all its hundreds of deals, only a dozen ever lost money, and these were relatively small transactions. Nowadays, Blackstone has a unique reputation for being one of the best real estate investment firms. Moreover, the real estate unit also benefits from the experience of general partners, access to the largest private deals, and a rigorous due diligence process.