

Value Creation of Private Equity Funds:

Practices in China

by

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ABSTRACT

Based on multiple case studies of the transactions in China by private equity funds, this paper attempts to explore the value-creation capabilities of private equity funds at the transaction/deal level.

Previous studies on financial performance of PE funds utilized data collected from publically traded companies in European/US markets. By measuring financial performance of both “pre- and post-transactions,” these studies researched two questions: 1) Do buyout funds create value? 2) If they do, what are the sources of value creation? In general, studies conclude that private equity/buyout funds do create value at both the deal level and investor level. They also identified four possible sources of such value creation: 1) undervaluation, 2) leverage effect, 3) better governance, and 4) operational improvement.

However, relatively little is known about the process of value creation. In this study, I attempt to fill that gap, revealing the “secret recipe” of value creation.

By carefully looking into the process of value creation, this study suggests five propositions covering capabilities at 1) deal selection/screening, 2) deal structuring, 3) operational improvement, 4) investment exit, and 5) Top Management Team (TMT). These capabilities at private equity/buyout funds are critical factors for value creation. In a thorough review of the value-creation process, this paper hopes to:

- 1) Share real-life experiences and lessons learned on private equity transactions in China as a developing economy.

- 2) Reveal the process of deal/transaction to observe measures taken place within deal/transaction for value creation.

3) Show how well-executed strategies and capabilities in deal selection/screening, deal structuring, operational improvement, and investment exit can still create value for private equity firms without financial leverage.

4) Share the experience of State-Owned Enterprises (SOE) reform participated in by private equity firms in China. This could provide valuable information for policy makers in China.

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Chapter 1

INTRODUCTION

1.1 Research Background

1.1.1 Rapid Growth and Expansion of Private Equity Industry

Buyout funds, as a major part of the private equity (PE) fund industry, are funds that primarily invest in privately held companies by acquiring a controlling equity stake. The popular investment strategies for buyout funds include: standalone (non add-on) and add-on acquisition. Often times, these transactions are structured as leverage buyouts, which deploy a fair amount of debt in financing the transaction.

PitchBook, a publication focused on US middle-market private equity funds, including buyout, growth capital, and mezzanine capital funds, published the following data as shown in tables 1 & 2, such as the number of transactions closed and percentage of debt used in the transactions during the period of 2000-2011.

Table 1 Deal Activities (2000-2011)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
# of standalone deals	426	322	417	625	860	983	1,189	1,363	942	519	712	660
% of deals closed	60%	62%	67%	65%	65%	61%	59%	56%	56%	54%	53%	50%
# of add-on deals	284	198	209	333	468	638	820	1,061	745	450	624	656
% of total deals	40%	38%	33%	35%	35%	39%	41%	44%	44%	46%	47%	50%

Data Source: PitchBook, Annual Private Equity Breakdown 2012

Table 2 Debt Percentage Used (2002-2011)

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Deals<US\$ 1 Bn	52%	49%	56%	56%	57%	57%	52%	51%	57%	46%
Deals>US\$1 Bn	63%	71%	55%	67%	67%	56%	61%	62%	59%	61%

Data Source: PitchBook, Annual Private Equity Breakdown 2012

Although PE firms were not mainstream before the 1980s, they now manage over \$1.2 trillion of capital in the US. Total annual capital raised (commitment) in the US rose from \$56 billion in 2001 to \$313 billion in 2007, and more than half of them were raised by buyout funds according to PitchBook (as shown in table 3).

Table 3 Fundraising Activities (2001-2011)

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Capital raised (US\$ bn)	56	79	44	90	142	224	313	312	152	89	93
# of funds closed	147	142	117	161	252	261	314	273	136	138	142
Avg fund size (US\$ bn)	0.38	0.56	0.38	0.56	0.56	0.86	1.00	1.14	1.12	0.64	0.65

Date source: PitchBook, Annual Private Equity Breakdown 2012

There have been numerous empirical studies on the performance of the PE fund since late 1980s (Jensen 1989) and (S. Kaplan 1989). These studies are based on data collected from publically listed companies in European and US markets. They researched two questions: 1) Do buyout funds create value? 2) If they do, what are the sources of value creation? These researchers concluded that private equity/buyout funds create value at the deal level and fund level (net of fees). They also identify four possible sources of such value creation: 1) undervaluation (of the pre-transaction target firm), 2) leverage effect (tax shield and disciplining effects), 3) better governance (better control mechanism and incentive realignment) and 4) operational improvement.

The majority of these studies use large samples of cross-section data, available in the US and European countries, measuring financial performance of buyout funds on “pre- and post-transaction” basis. However, to the best of my knowledge, there has been no research conducted so far concerning the process of value creation or revealing the “secret recipe”, in term, exploring the

value-creation capabilities at private equity/buyout funds and their activities. This study attempts to fill that gap and contribute to the research on the subject matter.

1.1.2 Definition of Value Creation

Before we can discuss the value-creation process, it is probably necessary to discuss the definition of value creation. Depending on who you ask, you may get many different answers. For the purposes of this study, I define value creation as an absolute increase of wealth (absolute investment return) or a relative increase of wealth (relative investment return). The wealth is measured/represented by monetary units.

Absolute increase of wealth is calculated as the total nominal returns of the asset plus the value of the asset minus the total money invested during the same period of time. This simplified calculation ignores the time value of money and inflation factor. The result could be positive (value creation), or negative (value destruction).

Relative increase of wealth is calculated as the absolute increase of wealth against a benchmarked asset with the same amount of money invested during the same period of time. The benchmarked asset could be the risk-free asset (Treasury Bill), or stock market index fund, etc.

Most past empirical studies measure the relative increase (decrease) of wealth at the deal/transaction or firm level, comparing the investment IRR generated by private equity/buyout funds to the return of investment in the stock market index during the same period (Harris, Jenkinson and Kaplan 2013). By doing so, these studies try to find out if buyout funds in fact created value for its investors.

1.2 Related Questions

Do buyout funds create value? If they do, where does this value come from?

To answer these questions, (Kaplan and Schoar 2005) and (Harris, Jenkinson, and Kaplan 2013) provide empirical evidence that large and mature private equity/buyout

funds outperformed the public market index and realized sustainable investment returns. Furthermore, (Bargeron, Stulz, and Zutter 2007) researched a sample of 1,292 acquisitions where 407 deals involved a private bidder and 885 deals involved a public bidder during the period of 1990-2005 in the US according to the Securities Data Company's (SDC) US Merger and Acquisition Database. They find that "the mean abnormal return for target shareholders is 43% higher if the acquisition is by a public firm than by a private firm". They also find that "of private firm acquisitions, 36.2% of the offers are withdrawn. In contrast, only 13.8% of the offers are withdrawn when the acquirer is a public firm". It seems that managers at private firms are "less likely to overpay and hence more likely to walk away from a deal than managers from public firms". They explain that PE firms may do a better job in identifying the undervalued target, closing the transaction more quickly (timing market), or possessing better deal-making negotiation skills than other potential buyers.

(Renneboog, Simons and Wright 2007) study a sample of 177 public-to-private transactions (PTPs) in the U.K. during 1997-2003, which includes the European population of leveraged buyouts and buyins. They examine the magnitude and the sources of the expected shareholder gains in the 177 PTPs. They test "the sources of the anticipated value creation of the delisting and distinguish between: tax benefits, incentive realignment, control reasons, free cash flow reduction, transactions cost reduction, takeover defenses, undervaluation, and wealth transfers". They find that "the main sources of the shareholder wealth gains are undervaluation of the pre-transaction target firm, increased interest tax shields, and incentive realignment".

In addition, (Acharya, Kehoe and Reyner 2008) research deal-level data on 66 large private equity deals (greater than GBP 100 million in enterprise value) in the UK initiated during the period of 1996 to 2004 by 12 mature private equity houses. They

claim that "mature private equity houses creating value for portfolio companies through active ownership and governance".

Furthermore, (Acharya, Kehoe and Reyner 2008) and (Gadiesh and MacArthur 2008) show that buyout firms were able to identify profitable investment opportunities, make and execute value-creation plans, including cost reduction, efficiency improvement, repositioning corporate strategy, exploring favorable add-on opportunities, and changing/rebuilding management teams.

Finally, (Acharya, Moritz and Kehoe 2009) studied 395 of deals closed during the period of 1991 to 2007 in Western Europe by 37 large, mature PE houses (each with funds larger than ~US \$300 million) with a mean gross IRR of 56.1%. They show that the task-specific skills and background of PE's General Partners (GP) significantly contribute to PE's abnormal return, and found that PE's abnormal return positively correlates with GP's background and value-creation strategy.

1.3 What are the Special Capabilities of PE Firms?

What are the special capabilities of PE firms? How do they work in the process of value creation? To the best of my knowledge, there does not seem to be research conducted so far to address this issue.

Based on two selected buyout transactions and interviews with six private equity firms in China, this research uses a multiple case study approach to explore the following: 1) The value-creation process of private equity/buyout funds at the deal level; 2) Characteristics/composition of the Value-Creation Capability (VCC).

Furthermore, this paper will propose a value-creation model at the deal level which may help to reveal the process of value creation.

1.4. Contributions

The possible theoretical contribution of this paper might be: 1) propose five value-creation propositions at the deal level; 2) test the suggested propositions through interviews with other fund managers, 3) show well-executed deal selections/screenings, deal structuring, operation/improvement, and investment exit strategies can still create value for the private equity firms and its investors (limited partners) without financial leverage (tax shield effective), which normally contributes a significant portion of the value created for private equity investment.

The possible practical contributions of this paper might include: 1) share experiences and lessons learned on cross-border transactions (especially in a developing economy); 2) reveal the inner workings at private equity firms at the deal level, which is the most basic unit of value creation, 3) effective control mechanisms implemented by investors is more relevant than ownership stake in influencing the invested company, 4) share the experience of SOE reform participated in by private equity/buyout funds in China, 5) share the experiences with Chinese local private equity firms and make policy recommendations for the development of the Chinese private equity industry.

Chapter 2

LITERATURE REVIEW

2.1 Performance of the PE Fund

There are numerous studies conducted by many scholars. The first group of studies focus on the performance data from the perspective of General Partners (GP).

In a research study on 199 transactions made by buyout funds from 1984 to 2004, (Groh and Gottschalg 2006) found that buyout funds obtained a higher positive abnormal return over risk-adjusted S&P 500.

Based on a large sample of 5,114 of private equity funds in 39 countries from 1984 to 2001, (Cumming and Walz 2004) found that the average (median) return of leveraged buyouts outperformed that of stock-index at a rate of 26.1% (34.1%).

Another group of studies focus on the performance data from the perspective of the Limited Partners (LP).

(Harris, Jenkinson and Kaplan 2013) found that “average returns of the US buyout funds have exceeded those of public markets for most vintage years since 1984. The Public Market Equivalent (PME) method developed by (Kaplan and Schoar 2005), compare actual return net of fees earned by LPs to what the investor would have earned in an equivalent investment in the public market. The results show that on average buyout funds outperformed S&P 500 index 20% to 27% over the life of the fund and more than 3% per year”. They also point out a “serious performance data bias in the Venture Economics (VE) database, which suggests that the results in (Kaplan and Schoar 2005) and (Phalippou and Gottschalg 2009) research underestimated fund returns, particularly for buyout funds”.

Specifically, the bias in the VE database was first discovered by (Stokey 2011). He has strong evidence that no additional cash flow was recorded and net asset values

remain constant from about 2001 with many funds in the VE database. Consequently, the fund level internal rate of return (IRR) in the VE sample falls within the passage of time, while multiples of invested capital remain unchanged rather than increasing.

In Europe, the Center for Management Buyout Research (CMBOR) of The University of Nottingham, U.K. and Adevq, a fund of funds based-in Zurich, Switzerland, jointly investigated U.K.-based private equity funds in 2005. They surveyed 98 of PE investors (LPs) and found that those investors claimed a 12.8% of absolute annual return from investment in PE, which outperformed stock-index by 4.2% during the same period.

Taken together, the results from above-mentioned research conclude that private equity investments do create value, not only at the GP level, but also at the LP level. This conclusion leads to further research on “what change did take place at the acquired companies post transaction?”

(Cumming, Siegel and Wright 2007) summarize research conducted in the UK (Harries, Siegel and Wright 2005), France (Desbrierers and Schatt 2002), and Sweden (Bergstrom, Grub and Jonsson 2007), and conclude that leveraged buyouts (LBO), especially management buyouts (MBO), improved the operation efficiency of acquired companies. In addition, (Lichtenberg and Siegel 1990) find a substantial increase of total factor productivity of the acquired company after LBO. Furthermore, based on a large sample of large-sized Public-To-Private (PTP) transactions during the 1980s, (S. Kaplan 1989) shows that the acquired companies enjoyed a Compounded Annual Growth Rate (CAGR) of operating profit of 20%, CAGR of net cash flow of 40%, a decrease in capital expenditure to sales, and an increase of enterprise valuation three years after LBO.

In general, the extant research shows that private equity funds outperform the public market. However, one obvious question continues to persist; that is “is there persistence in buyout fund performance?” To answer this question, (Kaplan and Schoar 2005) show performance persistence of buyout funds, which is rare among mutual funds (Garhart 1997) and hedging funds (Bares, Gibson and Gyger 2002).

All above studies taken either from the perspective of GPs or LPs, conclude that 1) the average return of buyout funds (net of fees) outperform that of risk-adjusted stock index; 2) improved financial performance, operational efficiency post transaction; 3) performance persistence of the buyout funds.

2.2 Possible Sources of Value Creation

Private equity/buyout funds typically use leverage in acquisition transactions. If E represents equity, D represents debt, and P represents total purchase price in a transaction, then we get $E + D = P$. If R_e represents the return of equity, R_d represents the return of debt, and R_p represents the return of price paid, then in a simplified form, we get a formula:

Equation 1 Leverage effect

$$R_e = R_p + (R_p - R_d) \times (D/E)$$

In which, $(R_p - R_d) \times (D/E)$ is used to evaluate leverage effect. $(R_p - R_d) > 0$ means that the leverage effect is positive.

In an attempt to identify the possible sources of value creation, the following researchers conducted several important research projects.

In a study of 395 of buyout transactions with a deal size over GBP 50 million made by large, mature private equity funds from 1995 to 2005, (Acharya, Moritz, and Kehoe 2009) found that the average internal rate of return (IRR) of those transactions was 56.1%. They also found that industry selection and leverage effect jointly contributed

8.5% in the said return. A different study (Renneboog, Simons, and Wright 2007), identifies potential sources of value gains for the shareholders in public-to-private transactions, including tax benefits, incentive realignment, better control procedures, free cash flow reduction, transactions cost reduction, takeover defense, undervaluation, and wealth transfers, etc. They claim that the main sources of shareholder value increase appear to be from undervaluation of the pre-transaction target firm, increased tax shields effect, and incentive realignment.

Studies by (Acharya, Kehoe, and Reyner 2008), and (Gadiesh and MacArthur 2008), however, indicate that buyout firms were able to identify profitable investment opportunities, make and execute value-creation plans, including cost reduction, efficiency improvement, repositioning corporate strategy, exploring favorable add-on opportunities, and changing/rebuilding management team.

All of these studies suggest the following sources of value creation: 1) leverage effect, 2) incentive realignment, 3) operational improvement, 4) active and improved corporate governance, 5) industry selection, and 6) changing/rebuilding management team.

2.2.1 Tax Shield Hypothesis

To gain a better understanding, I will take a closer look at the leverage effect. In this regard, a research study (S. Kaplan 1989) finds that the reduced taxes from higher interest deductions can explain 4% to 40% of a firm's value. The lower estimates assume that leveraged buyout debt is repaid in eight years and that personal taxes offset the benefit of corporate tax deductions. The higher estimates assume that leveraged buyout debt is permanent and that personal taxes provide no offset. Assuming that the truth lies between these various assumptions, a reasonable estimate of the value of lower taxes due to increased leverage for the 1980s might be 10% to 20% of firm value.

2.2.2 Agency Costs-Related Hypothesis

The discussion of incentive realignment is essentially the discussion of the reduction of agency cost. In this regard, there are three important agency costs-related hypotheses which underlie the motives of buyout (especially PTPs) transactions: incentive realignment, control, and free cash flow.

1) The incentive-realignment hypothesis

The realignment of managerial incentives with those of shareholders is frequently mentioned as an important factor in PTPs. Research by (S. Kaplan 1989) reports a median increase in equity ownership of 4.41% for top the two officers and of 9.96% for the other managers in LBOs. Under the incentive realignment hypothesis, the reunification of ownership and control will improve the incentive structure and is expected to increase managerial effort to maximize the firm's value.

2) The change-of-control hypothesis

PEs control the boards of acquired companies and actively engage in the corporate governance which seems different to passive nature of the boards of publically listed companies. (Acharya, Kehoe and Reyner 2008) find that 1) PE boards led the strategic direction at the acquired companies versus passive role by the boards at PLC companies; 2) PE boards pay close attention on the value-creation process whereas PLCs' boards concentrated on accomplishing seasonal profit targets; 3) PE boards quickly change underperformed CEO and CFO; 4) PE boards have fewer members, but spend more time on site and interact more frequently with management teams than PLCs' boards.

A separate study by (Karakas and Cornelli 2008) claim that board of directors plays a pivotal role and reform of the board is the key issue for corporate re-structuring post close.

3) Free cash flow hypothesis

A study by (Jensen 1986) indicates that “many of the benefits in going private and leveraged buyout transactions seem to be due to the control function of debt”. The free cash flow hypothesis suggests that “high leverage associated with buyout (especially PTPs) transactions will reduce wasting free cash flow (FCF) by bonding managers to pay out more cash flows to service the debt. This will be especially beneficial to firms that generate large amounts of FCF, on which there are little ‘hard’ claims by outside investors” (Renneboog, Simons and Wright 2007). The burden of debt, together with incentive realignment for the top management team members made them work harder for the shareholders of the firm. Therefore, effectively reducing the agency cost.

2.2.3 Operation Improvement Hypothesis

Operation improvement is one important source of value creation, as several research studies prove, conducted by (Acharya, Kehoe and Reyner 2008), (Gadiesh and MacArthur 2008), (Ofek 1994), (Garhart 1997), and (Cumming and Walz 2004). They conclude that PE firms use their knowledge of industry and operation to identify good investment opportunities, develop and execute the value-creation plans, with measures including cost reduction, efficiency improvement, updated and repositioned corporate strategies, looking for favorable acquisition opportunities, and changing the management teams, etc.

The conclusions of these above-mentioned studies identify: 1) tax shield hypothesis, 2) agency cost-related hypothesis, and 3) operational improvement hypothesis as the three main sources of value gains. Moreover, there are other research studies focused on: 1) information asymmetric (undervaluation) hypothesis and 2) the wealth transfer hypothesis that could be viewed as sources of value gain as well.

While the above-mentioned studies are important for a better understanding of the performance of the private equity/buyout fund and its sources of value creation, not much discussion, if any, touch upon the human factor. After all, strategy implementation is as critical as strategy formulation. A further review of the Upper Echelon Theory (Hambrick 1984) may shed light on what type of team and characteristics could achieve the desired performance.

2.3 Upper Echelon Theory

Top Management Team (TMT) is defined as a high-level management team that is responsible for developing and executing corporate strategies, organizing and coordinating resources, having decision-making and control power of operational management (Finkelstein and Hambrick 1996).

The construct of TMT is first put forward by (Hambrick 1994) in discussion of behavioral integration. He defines it as the collective interactions of thoughts and actions among TMT members. This concept is more comprehensive and concrete than previously used measurements such as leadership, cooperation, and communication, which are used to measure the operation process respectively. A study by (Simsek, et al. 2005) defines the TMT behavioral integration more specifically as TMT members exchanging information and knowledge openly and freely with each other, resolving conflicts, reaching consensus, executing strategies, and promoting corporate well-being.

Chapter 3

RESEARCH METHODOLOGY

3.1 Overview

This dissertation is an inductive, qualitative, multiple case study research paper. The general approach of this study is “theory building”. The research design is a qualitative, multiple case study (Eisenhardt 1989). Case study is a preferred research strategy for examining complex phenomena because they allow researchers to develop a holistic understanding of real-life events. It particularly suits the research question dominated by “how” and “why” (Yin 2014).

3.2 Research Question

Building on the previous research conclusion that private equity funds do create value, I attempt to provide answers on how private equity funds create value. By looking at the process of value creation by private equity funds before and after an investment decision is made, I begin to reveal the “black box”, i.e. inner workings at private equity funds. This is because such questions deal with operational links needing to be traced over time, rather than mere frequencies or incidence.

3.3 Research Design and Data Sources

Multiple sources of data in this study include documentation (emails, memos, news reports clips), archival records (annual reports filed at exchanges, public market index), surveys (questionnaires), and intensive interviews. By having multiple sources of evidence, establishing a chain of evidence, I try to test construct validity (Yin 2014).

3.3.1 Unit of Analysis

Most previously conducted research focus on the fund/firm level or limited partner level, which measure the aggregate investment return on a number of investment projects or a number of firms in case of limited partners. While this approach is valid

and meaningful, it does not measure the investment performance at the individual transaction/project level. Thus, it is hard to observe what happened at the individual deal/transaction level. Because of this deficiency, it is not clear how and why certain transactions are successful while others are not. By focusing on the deal/transaction level, I attempt to reveal the specific characteristics of successful projects.

Typically, a transaction would be carried out by a small group of professionals at a private equity fund. This group normally includes a project/transaction leader (finance background), an operation partner/executive, and at least one supporting associate (could be more depending on the workload). During the early phase of the investment, deal selection/screening, and structuring and closing, the project leader would take a principal role. Once the deal is closed, the operating partner/executive would take over as the leader in helping the invested company improve its operational efficiency.

3.4 Data Collection

I collected documentation and archival records and used both structured questionnaires and semi-structured, open-ended, conversational interviews. Each interview session lasted between 60-90 minutes, followed by telephone interviews for clarification purposes.

Recording the interviews were pursued unless the interviewees became uncomfortable and refused such a request. Otherwise, detailed notes were taken and a written communication was sent to interviewees for confirmation and clarification. Recording of the interview, if taken, was transcribed within 24 hours of the interview. Detailed notes of the interview were also communicated with the interviewees for confirmation or clarifications within the 24-hour timeframe.

3.4.1 Database

The database for the case study includes: 1) previous research conducted relating to this subject matter, 2) documentation (memos, emails, etc.), 3) archival records (annual reports), 4) new report, and 5) interview notes.

3.4.2 Data Analysis

Data analysis is partially intended and partially emergent. Throughout the analysis, I shift back and forth between the raw data and the patterns emerged from the data. The analysis takes an iterative path. The Gouji Mining Machinery (GMM) Case has detailed descriptions and covers the whole investment cycle from deal selection/screening to the investment exit. It has a step-by-step review of the process. This process description links closely with the research question of “how does private equity create value?” and “what happens in the process of value creation?” From this case, I would propose five working propositions. During the case analysis/discussions, some rival explanations would also be addressed to test the internal validity.

Regarding the GMM case, operational data is presented to compare: 1) with the investment return to the public market equivalent, i.e. if an investor invested the same amount of money into the public market during the same period of time, what would be the theoretical value? 2) with publically listed competitors during the same period of time in order to control the industry-specific risk factors, 3) with pre-transaction, six years of an investment-holding period and final exit of the investment.

The Zhengzhou Siwei (ZHSW) Case: The description of the case is less detailed. The data is collected from internal communication during QDUS due diligence process and the rationale behind the decision not to do the transaction. There are also news reports and interviews with the senior executives at the target company. Since no dataset is available to cover the whole investment period, the theoretical replication

approach is used to test proposition 1 (deal selection/screening capability, i.e. a private equity sponsor passed the deal because of due diligence result). On the other hand, the corporate sponsor fails to conduct meaningful and effective due diligence and ends up with a huge loss. For this reason, proposition 1 generalizes beyond the type of sponsor/investor of the deal.

3.4.3 Analysis Methods

Due to the nature of this case study research, I use pattern-matching and explanation-building methods to carry out literal or theoretical replications to test external validity (Yin 2014).

3.5 Survey and Interview

The survey and interview with 6 different private equity funds were conducted. The purpose of the surveys and interviews was to test all propositions: 1) deal selection/screening capability, 2) operational improvement capability, 3) deal structuring capability, 4) investment exit capability, and 5) Top Management Team (TMT) capability. Due to confidentiality reasons, true identities of the interviewees are not revealed.

3.6 Case Boundaries

The data set of this multiple case study is based on a total of twenty projects/cases out of documentation, archival records, surveys, and interviews with six different private equity funds. These funds include the Chinese office of the US-based private equity fund, Chinese office of the European-based fund, and local Chinese private equity funds. It also covers buyout and growth capital type of investment. While this represents a diverse background of funds and type of investment to avoid research bias for a certain type of fund's investment behavior, the limited number of funds studied/interviewed may still present bias, which could impact the conclusion of the study. Most likely, the

bias would be that the investment team at one fund has a certain risk/return appetite that would carry over to other projects the fund invested in. As the Chinese private equity industry grows more mature, researchers could have a better chance to observe and study with a larger sample size of private equity firms to verify the propositions proposed in this paper.

Chapter 4

GMM CASE

The introduction of a European/American style of private equity/buyout investment model into China (a developing economy) can be traced back to the early 1990s. However, such an investment model encountered unique challenges due to a different legal/regulatory environment in China. In general, the challenges included foreign exchange control, restrictions of foreign investment in certain industries, and an under-developed financial system. In particular, financial leverage, which is commonly used in developed markets such as Europe and the US, is not allowed by laws in China. Consequently, private equity/buyout activities in China are still in the early stages of development.

4.1 Macro-Economic and Policy Environment for Foreign Investment

The recent development of a market economy China shows two characteristics. On one hand, it has evolved in terms of “depth” and “width”. Development in “depth” indicates division of labor is becoming detailed, and the production mode is becoming more indirect. The “depth” of market economy development influences the efficiency of production in terms of quantity and categories of products and services provided. Development in the “width” of economy indicates that China’s participation in a broader range of international division of labor includes cooperation with more economic entities from different geographic areas. More categories of products and services are being offered because of this type of cooperation.

After 30 years of reforms, China is still transforming itself from a centrally planned economy to a market economy. Consequently, the “visible hand” of government is still frequently seen in economic affairs. Needless to say, the policy environment is an important factor for foreign investment in China. Oftentimes, policies and/or change of

policies become investment obstacles even deal breakers. This uncertain policy environment makes investments in China challenging to foreign investors. It is difficult, if not impossible, to make accurate financial return forecasts and monitor the investment process.

4.1.1 Foreign Exchange Control

China has the largest foreign reserves in the world. Due to historical reasons, however, China is still practicing foreign exchange control on capital accounts even though there are some new developments toward relaxing, eventually lifting such a control mechanism. This control regime makes it very important for the foreign investors to design a sensible deal structure to insure the smooth process of investment and exit.

4.1.2 Bank Lending Regulation

The Chinese financial industry is still in the development stage. In particular, commercial banks, mostly SOEs, still lag behind its western counterparts in terms of sophistication in banking expertise. The regulatory regime is also in the early stage of development. According to the Commercial Bank Law (2004) in China, commercial banks are not allowed to provide debt financing to merger and acquisition (M&A) transactions. After years of lobbying efforts led by industry professionals, the central bank finally allowed commercial banks to provide debt financing to M&A transactions in China in 2008. However, the new rule still has strict limitations on such debt financing. Due to these limitations, also the inexperience of the commercial banks to handle such a new line of business, very few M&A transactions with financial leverage have been reported. The rare reported cases are all with transactions sponsored by SEOs. This situation is improving, but is still far from satisfactory.

4.1.3 Policy on Asset Transfer at SOE

There are several restrictions in regard to the sales/transfer of assets/equity from an SOE. These restrictions include: 1) the asset has to be appraised by a qualified appraisal firm, 2) there has to be a public auction process, 3) the final transaction value should not be lower than 90% of the appraised value, and 4) the validity of the appraisal report is only one year. All these restrictions make it very difficult for a foreign investor to acquire an SOE. While these restrictions, with good intentions by design, serve a purpose of protecting state assets not being sold “cheaply”, they do create obstacles in a practical sense.

4.1.4 Accounting and Tax Policies

Chinese accounting principles have some major differences in comparison with that of International Accounting Standards (IAS) or General Accepted Accounting Principles (GAAP). Even though Chinese accounting principles are adopting more international standards in recent years, these differences make it difficult for foreign investors to judge and negotiate valuation of a target company with the seller. In particular, accounting treatment in regard to revenue recognition, inventory valuation, and bad debt reserves are dramatically different.

Contrary to what many may believe, China is far from a low tax country. According to the World Bank Report released in 2015 (as shown in Table 4), the overall tax rate for companies in China is as high as 63.7%. Although there may be some local preferential tax treatment and withholding tax arrangements extended to foreign investors, the attractiveness of investments by foreign investors in China has been declining as the result of high-level taxation.

Table 4 Tax or Mandatory Contributions in China (2014)

Tax or mandatory contribution	Payments (number)	Time (hours)	Statutory tax rate	Tax base	Total tax rate (% profit)
Employer paid - Social Security and housing fund contributions	1	142	37%+7%	gross salaries	49.6
Corporate income tax	1	70	25%	taxable profits	5.7
Urban maintenance tax	0		7%	VAT and BT	3.5
Education surcharge	0		3%	VAT and BT	1.5
Real estate tax	1		1.20%	80% building value	1
Stamp duty	1		0.03%	transactions	1
Business tax	1		5%	capital gain	0.5
Levies for construction and maintenance of river projects	0		1%	VAT and BT	0.5
Land use tax	1		RMB 6/m ²	land area	0.4
Value added tax (VAT)	1	106	17%	value added	
Totals:	7	318			63.7

Source: The World Bank

4. 2 GMM Case Description

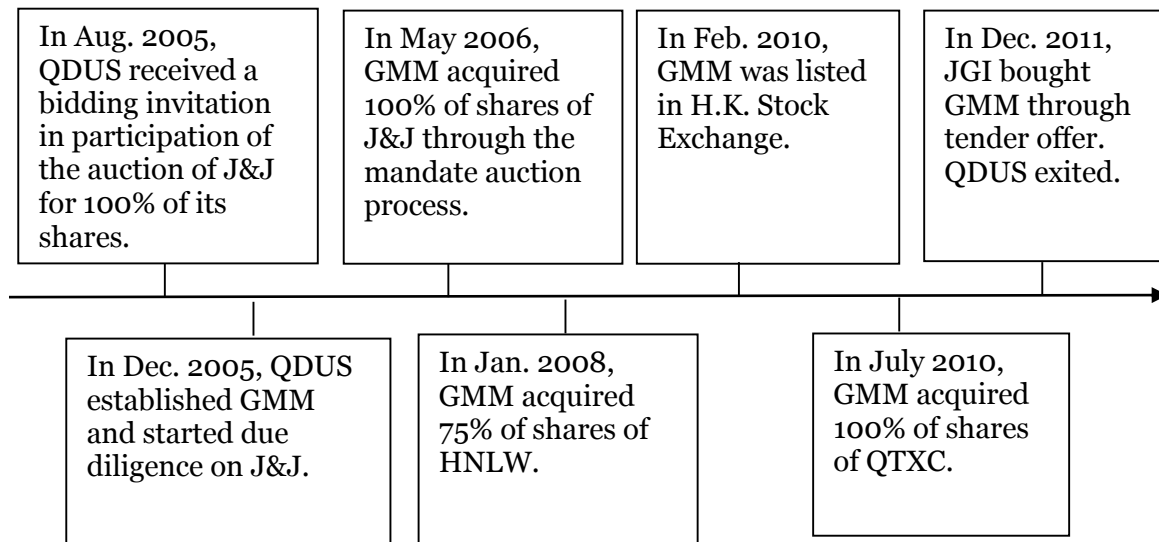
4. 2.1 Transaction Participants

The buyer: QDUS is a leading buyout fund specializing in middle-market transactions with its head office based in the United States. GMM (or the “Company”) was a special-purpose holding company established by QDUS in December 2005 to work as the acquiring entity.

The seller: Provincial State-Owned Assets Supervision and Administration Commission (SASAC) was the owner of J&J Co. J&J Co., the target company as an SOE, was a leading manufacturer of underground coal mining machinery (road header and shearer) in China.

4.2.2 The Investment Process at GMM

Figure 1 Investment Process at GMM



4.2.3 Description of the Two Transaction Stages

Stage one—platform acquisition: In May 2006, GMM acquired 100% of shares of J&J via a public auction process. J&J is the leading local manufacturer of road header and shearer used in underground coal mining in China. J&J was acquired by GMM as a

platform for post-acquisition integration and follow-up investments in the Chinese coal mine machinery industry. When the transaction was complete, there was no debt financing used as the commercial banks were not permitted to provide loans to the sponsor of a buyout transaction. GMM acquired J&J's 100% shares (including assuming all debts) all in cash.

Stage two- add-on acquisitions: GMM intends to provide a total solution for underground coal mining to its customers. The total solution includes four products: road header, shearer, armored face conveyer, (AFC) and hydraulic roof support. These 4 type of products are widely used in the underground long wall mining working-face. GMM realized its strategy by consolidation/integration through a series of add-on acquisitions. In January 2008, GMM acquired 75% of shares of Huai Nan Long Wall (HNLW), which is a Chinese local manufacturer of armored face conveyer in China. In July 2010, GMM acquired 100% of shares of Qingdao Tian Xun Company (QTXC), which is a Chinese local provider of electronic control system for coal mining machinery in China.

4.2.4 Financial Performance of GMM

IRR: During the period from June 2006 to December 2011, QDUS realized over 80% of IRR by investment in GMM. It is worth noting that this return is realized without any financial leverage due to Chinese banking regulation. The Public Market Equivalent (PME) method developed by (Kaplan and Schoar 2005), compares actual return net of fees earned by LPs to what the investor would have earned in an equivalent investment in the public market. QDUS's IRR of investment in GMM outperformed Public Market Equivalent (PME) in comparison with public market index performance.

Table 5 IRR at GMM versus PME

IRR of QDUS' Investment in GMM	80.40%
Stock Market Index	PME
Shanghai Composite Index	7.96%
Shenzhen Composite Index	18.40%
SSE SME Composite	20.00%
Hang Seng Index	1.23%
S&P 500 Index	-1.31%
Dow Jones Industrial Average	0.73%
Nasdaq Composite Index	1.33%

Notes: Detailed calculations are listed in Appendix A

As Table 5 shows, the financial performance of GMM compares with the PME calculation involving all major indexes from mainland China, Hong Kong, and the US. As illustrated, the financial return is significantly better than PME. This may be explained by the fact that private equity investments are much more risky due to the illiquid nature. Therefore, the risk and return ration is hugely different. Yet, the return beat the market by such a huge margin, it indicates private equity investment, if managed well, can still deliver a reasonable, if not better result, adjusted for its risk.

Table 6 Performance Comparison with Major Competitors

Financials (RMB in mm)	GMM	ERA Mining	SANY INT'L	China Coal	Tiandi	Zhengzhou Coal
CAGR of Revenue	25.06%	93.91%	48.83%	23.23%	38.25%	28.98%
CAGR of EBIT Margin	6.42%	-5.20%	3.04%	-1.37%	-1.60%	4.00%
CAGR of EBIT per Person	29.47%	N/A	20.93%	13.14%	9.24%	N/A
CAGR of Total Asset	23.36%	90.56%	33.72%	34.23%	36.73%	38.46%
CAGR of # of Employees	2.80%	N/A	26.82%	1.26%	24.54%	N/A

Note: SANY INTL's financials in 2007 is not available, so the period used in this table for SANY INTL's financials is from 2008 to 2011. More detailed information is listed in Appendix B.

Data source: Financial reports from each company filed with Shanghai and Hong Kong Stock Exchanges.

Table 6 shows GMM's performance comparison with its industry competitors in China. These competitors are the top level manufacturers out of over 1,000 coal mining machinery makers in China. Collectively, they represent about 80% of market share in the market for the same products. Table 6 shows Compound Annual Growth Rate (CAGR) of revenue at GMM is over 25%, which is the second lowest among its competitors. However, CAGR of total asset (representing capital expenditure) is the lowest at 23.36%. This implies the conservative operating philosophy at GMM. While conservatively optimistic about the sector growth potential, GMM is also careful about any possible industry downturns. This pro-growth, yet conservative approach differentiates GMM from its competitors. It is common for the Chinese manufacturing

companies to build more capacity by investing heavily in capital equipment when growth opportunity presents without much consideration for any possible market downturn.

Critics of private equity firms often claim that PE houses are “asset strippers” at the target companies as means to gain financial benefit. However, GMM’s example of a consistent yet conservative investment into the company at CAGR of 23.36% does not support such a claim.

Shown in Table 6, CAGR of EBIT margin at 6.42%, and CAGR of EBIT per person at 29.47% are the highest among all competitors. This implies GMM continuously improves its operation, raises productivity, and in turn, improves the earning power of the company whereas Chinese competitors are trying to grab more market shares with less consideration on profitability of the operation. CAGR’s number of employee is the second lowest among its competitors. While employment increased moderately, GMM spent much time on employee training, organization reform, and redesign of incentive system. All these efforts greatly improved total production factors.

Table 7 GMM's Performance over the Investment Period

RMB in mm except ratios	2006	2007	2008	2009	2010	2011	2007- 2011
Direct Material	380.4	368.9	615.6	731.4	849.4	894.6	3,459.9
Direct Labor	39.4	40.4	57.0	69.8	76.9	85.3	329.4
Cost of Manufacturing	97.7	95.1	132.0	143.2	174.2	207.7	752.2
Total	517.5	504.4	804.6	944.4	1,100.5	1,187.6	4,541.5
Fixed Cost	24.8	27.9	32.9	32.1	34.3	47.1	174.3
Variable Cost	492.8	476.5	771.8	912.4	1,066.2	1,140.5	4,367.4
Variable Cost /Fixed Cost	19.9	17.1	23.5	28.5	31.1	24.2	25.1

Table 7 shows that over the time of investment, the ratio of variable cost over fixed cost gradually increased from 19.9% to 31.1%. Throughout this investment period, continuous improvements were made and productivity was improved. It implies the growth driver at GMM is mainly operating leverage (productivity improvement) rather than heavy spending on capital expenditure. However, at the end of 2011, there was major capital expenditure occurred as a part of IPO commitment. While somewhat contradicting to its previous effort on controlling capital expenditure spending, it indicates a private equity firm committing itself to sustain growth at the invested company by investing further in upgrading technology and hardware.

4.3 The Value-Creation Process at GMM

4.3.1 Deal Selection and Screening

As an experienced private equity firm focusing on middle-market transactions in the US, QDUS has developed methodologies that proved to be useful in the deal selection/screening process. The Chinese office of QDUS also has completed more than 20 transactions before the J&J deal. These transactions cover manufacturing companies ranging from plastic injection molding, plastic extrusion, precision aluminum die casting, electric motors and gears, metering instruments for gas, and electric and water applications.

Years of successful investing into the manufacturing companies in China, the office of QDUS in China has become one of the most respected and experienced private equity firms in China. To make an investment decision, QDUS China would evaluate the target company in terms of deal size, growth potential (EBITDA and revenue), integration opportunities post deal, acquisition multiple, potential risks (and if they are controllable), and investment exit strategies and opportunities. An investment decision is made only if the target company meets the firm's investment criteria.

In terms of deal size for J&J, the proposed transaction value of J&J was estimated to be in the range of USD \$100-120 million which seemed appropriate for QDUS since it specialized in middle-market transactions which typically ranges from USD \$50 million to USD \$1 billion.

The valuation of the target company was estimated to be about 4 times of EBITDA (2004) based on the audited financials provided by a third-party service provider. This level of valuation seemed to be appropriate for QDUS given the absence of debt financing on the transaction.

In evaluation of growth potential (EBITDA and revenue), QDUS estimated the market size of coal mining machinery in China may grow at a compound annual rate of 20%-30% in the following 5 to 8 years. The main growth drivers are: 1) Nearly 70% of the electricity consumed in China are generated by coal-fired power plants. The overall growth in the Chinese economy would create persistent demand for coal consumption, which would have to generate enough power to support the GDP growth targeted by the government.

However, the dependence on coal consumption for energy supply will not be significantly changed given the lack of alternative energy sources available to support the economic growth in short term. 2) Safety initiatives by government-required Chinese coal mines to mechanize the production process in order to reduce deaths and/or injuries in the underground coal mining industry. As a leading manufacturer of underground coal mining machinery in China, J&J should benefit from said policies. This “industry selection” (Acharya, Moritz, and Kehoe 2009), turns out to be a very important contributor to the ultimate investment return.

When considering investment into J&J, QDUS also identified add-on acquisition opportunities to consolidate J&J (road header and shearer manufacturer) with other manufacturers of “armored face conveyer” and “hydraulic roof support” to provide a total solution to underground coal mines. This total solution would provide a better customer experience, therefore, J&J would be able to satisfy the needs of the customers. The total solution (one-stop shopping) approach is well adopted in other industries. However, due to historical reasons, this practice was never adopted during the period when the company was an SOE. Identification of add-on investment opportunities is also a key contributor for value creation (Acharya, Kehoe, and Reyner 2008) (Gadiesh and MacArthur 2008).

While considering the positive side of the transaction, QDUS also considered the potential risks of this proposed transaction. Due to rules and restrictions by SASAC on the selling of assets of an SOE, and the lack of experience of SASAC personnel in charge of this transaction, it was a challenge to close the acquisition before the deadline. If the transaction could not be closed before the deadline, which is one year from asset appraisal date, it would have to start a new asset appraisal process and a new public auction.

Prior to working on this transaction, the QDUS China team has been reviewing over 300 potential investment proposals each year. Most of the proposals were killed because they were unfit with the investment criteria. QDUS only does due diligence investigations on a few projects a year.

With the approval from the investment committee, the QDUS China team led the due diligence (DD) investigation process which involved third-party professional service firms. The objective is to identify and verify the market opportunities/risks (commercial DD), potential financial/tax risks (financial & tax DD), and potential legal risks (legal DD). This process took 10 months to complete in which the DD team went back and forth many times. Due diligence results showed no serious deal breakers.

4.3.2 Deal Structuring

Carve out non-core business activities: Like many SOEs in China, J&J owned and operated many auxiliary businesses which has nothing to do with its core business activities, but carrying out its social responsibilities. These activities include running a hospital, kindergarten, and primary and secondary schools. Obviously, QDUS would have to discuss and negotiate with the provincial SASAC to carve out these non-business activities prior to the close of the transaction.

Negotiation: QDUS negotiated with the provincial SASAC about the term sheet which included valuation, payment terms, and a list of conditions to close. It is worth noting that that QDUS insisted on a settlement of the employee's pension obligations at the SOE, and starting a new employment relationship with the new entity. It later turned out to be a key decision that smoothed the initial public offering process at Hong Kong Stock Exchange.

In structuring this deal, QDUS established GMM Cayman and GMM H.K. as the holding companies to acquire J&J. This structure allowed QDUS to benefit from withholding tax rules among mainland China, Hong Kong, and Cayman and also enable QDUS to exit the investment more easily in the future.

4.3.3 Operation Improvement

QDUS believes that the closing of a deal is just the beginning of the value-creation process. There is a tendency at any organization to maintain status quo, not to change its existing system that has been in place for a long time. Even after realizing the existing system has many flaws needing to be fixed, people are afraid of change that may bring uncertainty. They tend to resist change and refuse to even try. QDUS realized that if the reform at J&J was necessary, it was better to do it right after the close of a transaction.

In order to lead the transformation process, QDUS established GMM's executive committee (EXEC). The EXEC is tasked with the reorganization process, which would transform the governance model from an SOE to a private corporate entity. EXEC knew that it was necessary to demonstrate the determinations of reform not by words, but actions. Sometimes, EXEC brought in independent consulting firms to show there might be better ways to do what the employees have been doing. Other times, EXEC required subsidiaries to set up continuous improvement (CI) units to lead the

incremental operation improvement. During the reform process, one of the important things was to find a right person to lead a CI unit. If we want to create value, there should be leaders who are doing right things in the right ways.

On the operation-improvement front, here are the growth initiatives to increase revenue:

Reorganization of sales and marketing: Historically, J&J, HNLW, and QTXC sold their products independently to the same coal mine customers. EXEC decided to set up a sales/marketing team at the group level in order to share customer demand information and practice cross-selling products made by different subsidiaries. As a result, each subsidiary increased its selling opportunity and learned new customer demand information. The sales and marketing team also worked closely with the finance and accounting department to control credit risk and receivables from each customer. The effort resulted in increased revenue and reduced cost and better credit risk control.

Reorganization of Research and Development (R&D): J&J, HNLW, and QTXC designed and manufactured products independently before they became a part of the new entity. As a result, there had not been any collaboration among the subsidiaries on R&D. With the help of EXEC, GMM set up an R&D center at the group level and developed customized designs with each product team. EXEC, through the global network of QDUS, also introduced global market leaders of professional equipment to collaborate with GMM in developing new products, such as new road headers with gas detection sensors and continuous miners.

Another area of operation improvement is “productivity initiative” that aimed at cost reduction.

Reorganization of supply chain: GMM's supply team worked as a procurement information center and a buyer of bulk raw material (such as steel plate and profiles), explosion-proof motors, and electronic control systems. Group purchase bargaining power helped not only reduce the total purchase cost as a result of volume discount, but also strengthened the after-market service capability and integration-design capability.

Adjustment of product offerings: An internal research made in 2007 showed that J&J manufactured a total of 18 series with 66 product models of shearer in the preceding three years. However, only 15 models contributed over 80% of the revenue and gross profit. EXEC made a decision that the R&D (and the marketing) should concentrate on improving the 15 models of shearer in the future.

Parts standardization and modularization: The Bill of Material (BOM) for shearer at J&J included over 10,000 of parts in 2007. By changing product offerings, and introduction of parts standardization and modularization program, the BOM of shearer reduced to 2,500 parts in 2009. The smaller-sized BOM enabled the company to have a lower inventory level, reduced lead time, and a simplified production process. This effort alone improved cash flow and profitability at the company.

Introduction of lean manufacturing: Due to historical reasons, J&J adopted batch production process with a function-based layout. Batch production process had caused serious work in process (WIP) inventory issues and production bottlenecks. EXEC brought in an independent consulting firm to train J&J staff to change to a lean manufacturing process. Eight CI units were set up. They drew the value stream map (VSM), projected the process reengineering step by step, and began at incremental operational improvement. This included observing seven wastes on site, operation process standardization, Single Minute Exchange of Die (SMED), and partially

reconstructing the production processes to implement one-piece flow. These activities minimized WIP and shortened lead time.

In addition to the “growth initiatives” and “productivity initiatives”, there are also other areas that private equity firms can create value. For example, control and compliance are two such areas:

In order to reduce operational risks and meet the compliance requirements, EXEC encouraged GMM to establish an internal control system and reorganize business units. These efforts are nicknamed as “plugging leak”.

Financial control: EXEC selected and designated a chief financial officer (CFO) to each subsidiary. The CFO set up a new financial control system in the subsidiary according to the new internal control system implemented. This new financial control system always included line of authority (such as up limit of contract size permitted to be signed by each salesman), budget control, and audit control. The CFO also carried out cost-control measures, including verification of the proper cost accounting model. EXEC realized that if the inaccurate cost accounting assumption was present, then the effective cost-saving decision-making was difficult, especially in the case where there was a bulk of booking WIP inventory.

Receivable control: EXEC implemented customer credit line system not only in each subsidiary but also in GMM as a group. GMM gave a credit line to a customer. The sum of credits extended by each subsidiary to the same customer should not be over the total limit set by the group. EXEC also implemented a collection of the account receivable system in each subsidiary. The sales/marketing team at the head office provided a general guideline to train and educate salespeople in identifying potential risk of receivables and steps on collection of overdue receivables.

Capital expenditure control: EXEC strictly controlled capital expenditure budgets at each subsidiary. The subsidiary was required to submit a detailed capital expenditure plan with business rationale. This requirement seems to be simple and reasonable, but it is not implemented during the SOE time. Management teams at subsidiaries always have the urge to build an “empire” regardless of its real business needs. In most capital budget plans submitted, management teams tend to use the short-term market demand to justify the urge to expand production capacity. For example, a management team at the road header business unit submits a capital budget plan for building a new assembly workshop claiming that there is not enough space for assembly work so that it becomes a production bottleneck. EXEC, together with the management team members, took a closer look at the situation and found that the issues could be resolved by introducing better storage and layout of sub-assembly parts. By installing vertical shelves for parts storage, it creates ample work space for assembly. There is no need to build another assembly workshop.

There are other cases where EXEC decided to incur capital expenditures on new equipment, such as installing a gas-heating furnace for forging operation in replacement of a coal-burning heating furnace, or installing a ventilation system in a welding workshop. This type of capital expenditure does not increase production capacity, but rather for energy efficiency and/or Occupational Safety and Health Administration (OSHA) or environmental compliance purpose. Controlling capital expenditure measures are not intended to just control cash outlay, it means to improve productivity and raise efficiency of the operation.

4.3.4 Investment Exit

As discussed above, as a mature private equity firm, QDUS considered the investment exit opportunities even prior to its investment, and throughout the entire

holding period of the investment. The team at QDUS consistently met and entertained potential buyers including private equity firms, sovereign wealth fund managers, fund of fund managers, and corporate buyers. In fact, QDUS discussed potential trade sale opportunities with a corporate buyer numerous times prior to its decision to do an initial public offering (IPO). The transaction did not take place because no agreement can be reached on the valuation of the transaction. Trade sale, if it can be arranged, would be a relatively easy exit for a private equity investment in which sellers can trade off its higher valuation multiples for a quick exit.

While the IPO may present a higher investment return for private equity firms, at the same time, it does present risks of a prolonged process with uncertainty of capital market fluctuation. A trade-off risk and return decision has to be made by the private equity firm.

In the case of GMM, QDUS finally decided to list the company at Hong Kong Stock Exchange in early 2010. Excellent financial performance at GMM drew attention from fund managers and general public. This also made the corporate buyer who discussed a possible acquisition of the company before GMM's listing more interested in the transaction. As a publically traded entity, GMM's market value is transparent. Thus, there is no need for intensive negotiation between the buyer and seller. Therefore, Joy Global, a global manufacturer of coal mine equipment, acquired 100 percent shares of GMM via a public-to-private transaction at the end of 2011.

Throughout the process of investment exit, the QDUS team demonstrated expert knowledge, experience, and skills in working and negotiating with investment bankers, law firms and accounting firms. This capability at QDUS maximized the financial return for its investment.

4.3.5 The Role of EXEC

QDUS led the formation of GMM and promoted the result-oriented culture at the new entity. QDUS believed that equity incentive plan could motivate the team and solve part of the motivation issue (or “why they do”), but GMM also needed strong leaders to lead the employee to move forward (or “where to go” and “how to do it”). This “incentive realignment”, i.e. reunification of ownership and control is expected to increase managerial effort to maximize the firm’s value (S. Kaplan 1989).

As a mature private equity firm and an active shareholder, QDUS established GMM’s executive committee (EXEC) and introduced an incentive plan for senior management team members.

Table 8 Profile of the Executive Team Members

	A	B	C	D	E
Years of experience at senior-level management	30	25	25	25	25
# of companies invested in the past	50+	35	5	0	0
Years of experience in coal-mining machinery industry	0	0	0	40	35
Years of experience in finance/investment	15	17	5	0	0
Years of experience in operation management	15	8	20	40	35
Time spent in China (days/year)	3	250+	250	300	300
Internal communication frequency (#/month)	4+	8+	8+	8+	8+
Time spent at subsidiaries (days/year)	14	90+	90+	200+	200+

As shown in Table 8, the EXEC includes five members, two of whom are Chinese locals (CEO of J&J and HNLW respectively), two are from QDUS, and one person was former head of Asia for a well-known multinational company. The members of EXEC

worked as transformational leadership team at GMM. QDUS guided the setup of a line of authorities as well as responsibilities among the five members, designed the decision-making process, and managed the communication and conflict resolution among the members, which finally seemed to have a great influence on the performance of GMM.

The EXEC members are highly complementary to each other in skillset and area of expertise. Without exception, each member has solid operation experience even though two of them are partners at QDUS. The EXEC members exchange information and knowledge openly and freely with each other, resolve conflicts, reach consensus, execute strategies, and promote corporate well-being (Simsek, et al. 2005).

GMM's goal is to achieve objective as a "C-C-D" triangle, i.e. compliance, (legal and financial) creation (value), and (employee) development, which support and influence each other. EXEC led GMM to realize the "C-C-D" objectives by the following activities:

1) Reformulating corporate strategies

Under the leadership of the EXEC, GMM acquired HNLW and QTXC as add-on acquisitions, which not only grew the revenue at the company, but also strengthened the competitiveness of the company and enhanced the market position.

Market positions of GMM's subsidiaries were different. J&J was the market leader of road header and shearer, while HNLW was the niche player of the armored face conveyer market. Given the different market position of each subsidiary, EXEC, together with the management team, reformulated different competitive strategies for the subsidiaries right after the close of the transaction. J&J adopted strategies to maintain its market leadership position. This strategy requires concentration on only 20% of its total product models involving new and existing products that contribute 80% of its operating profit. Meanwhile, HNLW adopted a strategy to expand its share in a niche market and to bear lower profit margin than J&J.

2) Organizational re-structure

Under the leadership of the EXE, GMM transformed the original structure of divisional to matrix structure in order to benefit from synergies derived from integration of R&D, sales and marketing, procurement and human resources management. For this purpose, EXEC made a decision to set up GMM's head office in Beijing with several functional departments such as a R&D center, sales and marketing, and supply chain management. The object is to achieve operational synergies among different business units.

3) Change of incentive plan for management staff and performance review standard for employees.

While introducing operation improvement projects to subsidiaries, and monitoring the improvement process, EXEC found that the challenge was not an issue of if there might be a better way to do things, but an issue of that how to motivate employees to find out and adopt a better way to do things. It means that a successful improvement project needs not only the knowledge and technique but also the new incentive plan. As a long-time SOE, employees at J&J are used to promotions or raises based on "seniority" or "relationship" rather than on performance. The "Iron Rice Bowl" mentality of employment, if not changed, would not make the company competitive in the market. In fact, the lack of a proper incentive system could make the company less competitive. For example, during the time that J&J was an SOE, the company encouraged R&D engineers to develop "new" products. However, while this policy was designed with good intentions, it was abused by engineers. They claimed to customize the product as a way to better serve the customer, by designing parts using non-standard steel plates. This "new" product created unnecessary production difficulties and drove up cost

because the parts cannot be shared with other product models. The design engineers were doing so only because they could get reward for their “creativity”.

EXEC realized that it is the incentive regime that caused unintended consequences. This situation must be changed. EXEC helped J&J to set up new R&D process where a comprehensive review of “new” product would have to be assessed in terms of its potential market size and/or if it is necessary to change the size of the material of the part. Participants in the new product review would include staff not only from R&D department, but also from sales/marketing, production, and supply chain management departments. R&D engineers would be rewarded only if the new product was accepted by customers for its uniqueness, and most importantly, if the company benefited from such a new product launch.

The aforementioned example is just one of many changes at GMM in regard to an employee incentive/reward plan and performance appraisal where good performance is rewarded, and bad performance is penalized. By changing the performance appraisal and incentive regime, employees are motivated. As a result, the total number of employees at the company remained almost constant where the revenue rose four times during a period of six years.

GMM also recruited professionals specializing in design, technical marketing, supply chain management, and operational improvement from the marketplace inside and/or outside of China. It promoted internal transfers of employees among subsidiaries, especially transferring J&J’s engineers and other professionals to HNLW and QTXC to support their rapid growth. All these initiatives are designed to enhance the competitiveness of the company in the market.

4) Promoting new corporate culture by implementation of a code of conduct (business ethics).

GMM, as a leading player operating in the Chinese coal mine industry, has been in existence for a long time. While long history is a huge asset for the brand name and goodwill of the company, it also has history of business practices that are not in compliance. To avoid legal exposure in this area, EXEC made an effort in promoting legal/ethical conducts, distributed a handbook of “rule and regulations” to all employees at the company including all subsidiaries. EXEC also made a decision to spin off the corporate sales team and make them become independent agents/brokers/dealers to avoid/reduce potential non-compliance risk in sale activities.

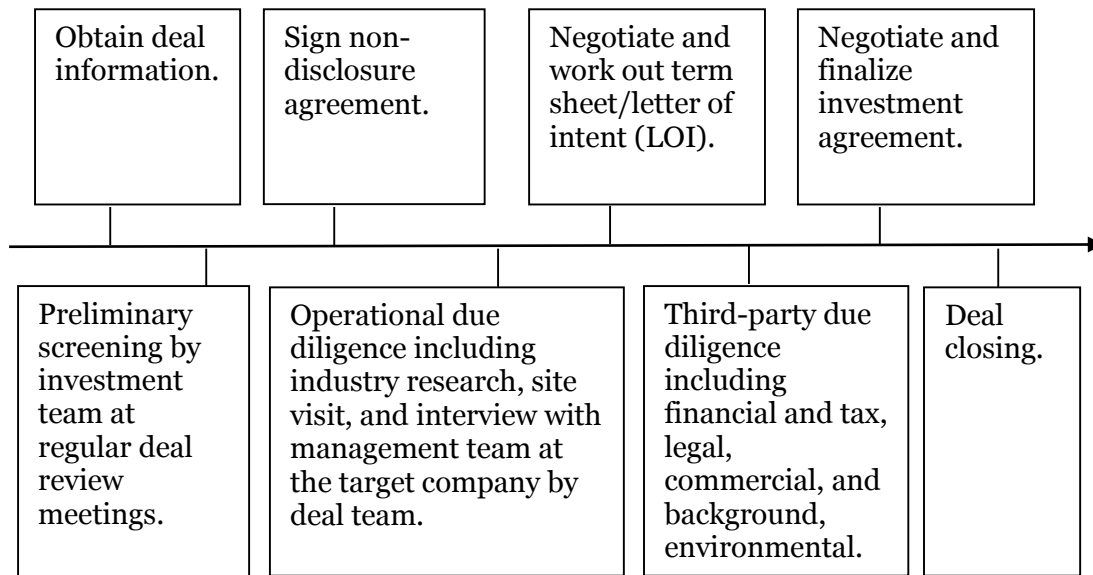
4.4 GMM Case Discussion

From GMM case above, it seems that a successful buyout fund must possess four capabilities at the deal level: 1) deal selection/screening, 2) operational improvement, 3) deal structuring, and 4) investment exit.

4.4.1 Capability of Deal Selection/Screening

The objective of deal selection/screening is to identify the right industry and right target company to invest. The capability of deal screening covers: 1) proprietary deal source and 2) strict deal screening.

Figure 2 Deal Selection/Screening Process



As Figure 2 shows, the deal selection/screening process involves various steps in obtaining deal information through a proprietary deal source, conducting industry research, operational due diligence investigation on the target company, negotiating term sheet with the target company, engaging a third party to conduct a thorough due diligence investigation. The due diligence investigation includes financial, tax, legal, commercial as well as environmental. Personal background checks on key executives are conducted, if needed.

Deals that are selected through this vigorous process become a small percentage of the deals reviewed by private equity firms. According to data at one firm interviewed, the number of active projects as a percentage of total projects at each stage is as follows: industry research (8%) → non-disclosure agreement (NDA) (2%) → due diligence (0.5%) → negotiation and signing agreement (0.3%) → deal closing (0.3%).

Proposition 1 ---Deal selection/screening is the most important step in the value-creation process by a private equity firm, if not done well, investment performance will suffer.

While the ability to select/screen the right deal is important, it is not the only capability a PE fund must have for its investment to be successful.

There is one research study showing that private equity firms “created” value by acquiring under-valued companies (Renneboog, Simons, and Wright 2007). However, my research findings do not support such an observation. GMM was acquired by QDUS through a public auction process which was administered by SASAC. The auction participants include private equity firms, corporate buyers from China and abroad. It is hard to imagine that during such a competitive bidding process, any potential investors, regardless of private equity firms or corporate entities would have an advantage in acquiring under-valued assets. Unlike the early days, it is significantly more difficult to gain advantage for private equity firms in acquiring undervalued assets due to the development of auctions for private equity deals (Cumming, Siegel, and Wright 2007).

4.4.2 Capability of Operational Improvement

Proposition 2---Private equity firm must provide value-added services on operation improvement at the invested company to create value. Financial engineering alone cannot generate the expected financial return.

When a PE fund invests into a company, it would want to control the board of an acquired company and improve operation by making strategy decisions and organizing top management teams in order to improve competitiveness through reorganizing existing production factors and adding new production factors. The efforts are not limited to cost reduction and/or efficiency improvement, but also enhancing overall competitiveness. However, this maneuver may be subject to acceptance by the entrepreneur/founder of the company if the investment is a growth-capital type, i.e. minority investment. Nevertheless, operation improvement becomes a key source of

value creation for PE investments. Operation improvement may include, but is not limited to a “top-line initiative” and “bottom-line initiative” approach.

- The “top line” approach mainly involves new product development, new channels, new geographies, existing geographies, and existing customers. This growth-oriented strategy is relatively easy to be implemented by operation team. In order to carry out this task, a PE fund may have to introduce external resources to bridge the “gap” at the invested company. These gaps could be deficiencies in human resources, technical expertise for technology upgrades/transfers, and/or in re-establishing sales/distribution channels, re-design the process of new product development.

- The “bottom-line initiative” approach means that investors would focus on productivity and efficiency issues: 1) supply chain management, 2) overhead reduction, 3) process efficiency (e.g., process reengineering), 4) working capital reduction, 5) capex reduction, and 6) other cost reductions. To control and minimize operational risks (such as legal and financial), PE funds may also help the acquired firm to establish and strictly enforce an internal control system, and re-organize business units. Depending upon the specific needs and its corporate culture of the acquired company, PE funds would gradually introduce best practices and management systems. For example, introduction of lean manufacturing and six sigma concepts together with restructuring incentive/compensation systems. Other areas of concentration would be implementation of work-floor management, supply chain management covering supplier evaluation/development, technical training/support, and assessment. Introduction of information systems such as the Enterprise Resource Planning (ERP) system would be a highly desirable initiative to improve productivity.

4.4.3 Capability of Deal Structuring

Proposition 3---A well-designed deal structure will increase the probability of financial success for private equity transactions.

The objective of a proper deal structure is to balance the investor's risk and return consideration. It implies thoughtful selection of a co-investor, if any, and to set up a meaningful control mechanism. Ultimately, PE investors can achieve win-win results for parties involved in the transaction. This process involves 1) determining the objective of the transaction, 2) designing the deal structure (based on communication/negotiation between investors and the company), 3) managing or co-managing (if co-investors present), and 5) transaction close.

These simple steps seem to be unimportant at the beginning of a transaction, but they could be a deciding factor leading to success or failure of the investment. For example, in the case of the GMM deal, the original owner of the company wanted to retain a small portion of ownership percentage in the new company, but the buyer/investor did not agree with this request. It turns out to be a right decision on the part of the private equity investor. Had the seller retained some equity in the company, many HR issues could not be resolved due to the SOE history.

4.4.4 Capability of Investment Exit

Proposition 4---Capability of investment exit would be the last but not least critical step. Investment return will not be realized unless it is done properly.

The predetermined fund life cycle at private equity firms requires the fund to exit all of its investments before the end of fund life. By default, private equity funds must consider exit events at the beginning of an investment. Typically, halfway through the fund life cycle, a private equity firm will actively mobilize a variety of resources to work on the contemplated investment exit process. This process involves: 1) design of the

deal structure at the time of investment, 2) work closely with investment bankers, brokers/intermediaries, 3) network with potential able buyers, and 4) design incentive structure for the management team for the exit event.

4.4.5 TMT Role at the Deal Level

Proposition 5--- TMT is important for every phase of the investment process at the private equity firms. Without a capable TMT identified and assembled, no financial return can be expected.

As previously discussed, there is a need to understand human capital expertise that successful private equity firm requires. There have been no systematic studies of the relationship between human capital factors and financial returns (Cumming, Siegel, and Wright 2007). An attempt to study the relations of the demographic characteristics of deal manager and members of the operation committee with organizational behavior and performance, and the process and mechanism of how the functional relations work would be highly desirable.

4.5 T-SOSE Model (Capacities at Deal Level)

Figure 3 T-SOSE Model (Capacities at Deal Level)

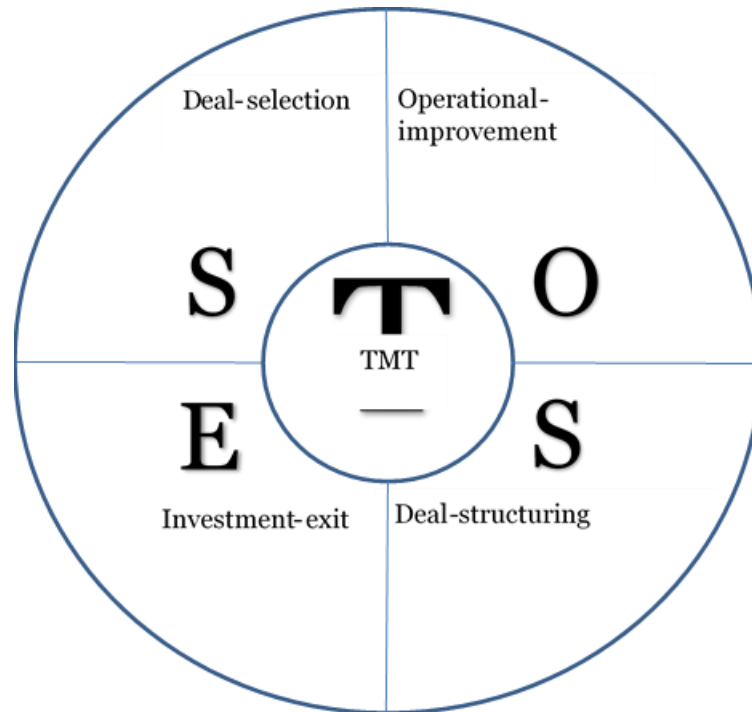


Figure 3 shows the proposed T-SOSE model for private equity firms at the deal level. As indicated, deal-selection/screening, operational-improvement, deal-structuring, and investment-exit capabilities are all centered around the TMT. TMT is impacting every phase of the investment process. This T-SOSE model can be utilized in analyzing private equity investments. The proposed T-SOSE model assumes 1) private equity firm is actively pursuing its financial goals and 2) there is no major uncontrollable industry downturns in the sectors invested by the private equity firm.

CHAPTER 5

ZHENGZHOU SIWEI (ZHSW) CASE

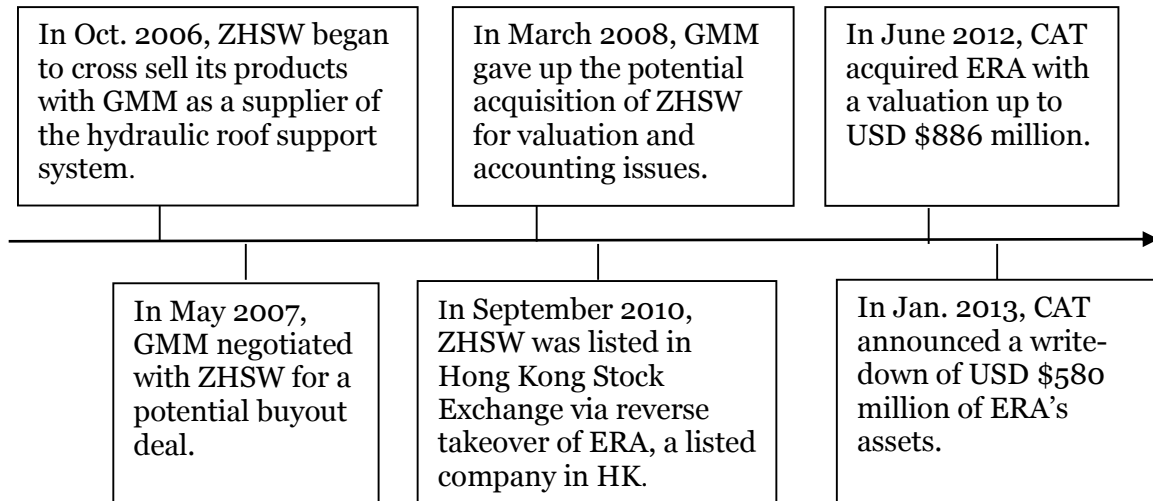
5.1 Transaction Participants and Process

Potential buyer: QDUS is a leading buyout fund specializing in middle-market transactions with a head office in the United States.

Ultimate buyer: Caterpillar Inc. (CAT) is a leading global manufacturer of mining and construction machinery.

Seller: ZHSW is a privately owned Chinese manufacturer of hydraulic roof support located in Zhengzhou, Henan Province, China. It was ranked the top three maker in the Chinese hydraulic roof market in 2008.

Figure 4 Investment Process of CAT into ZHSW



5.2 Description of the Transaction

Typically, coal mines in China utilize “3+1” sets of equipment as a “comprehensive solution” for the underground coal mining activities. This comprehensive solution includes road header (RH) used to bore tunnels in coal mine, shearer used to cut coal seam, armored faced conveyor (AFC) to transport coal, and hydraulic roof support (HRS) to avoid falling of the coal seam at the working face.

GMM, as a maker of AFC, shearer and road header, teamed up with ZHSW to provide a total solution to coal mine customers. Coming from one supplier will save trouble from customers if there are issues with the interworking of the complete system. Therefore, engineers at GMM and ZHSW worked side by side to make sure that the complete system would work in tandem at the underground working face. Through this close working relationship, GMM and ZHSW started discussion on a possible acquisition of ZHSW. With the help of QDUS, GMM started the process of an operational, financial, and tax due diligence investigation on ZHSW.

However, the outcome of the due diligence investigation showed that there were issues regarding revenue recognition practice and inventory valuation. These issues, if not resolved, could be deal breakers. Based on this discovery, GMM evaluated the business at a much lower enterprise value than that of ZHSW shareholders who were willing to sell. Neither side was willing to compromise. As a result, GMM had to terminate the discussion on possible acquisition. About a year later, ZHSW went public through a reverse merger process with ERA which is a publically traded company listed on the GEM board at the Hong Kong Stock Exchange.

In November 2011, CAT acquired ERA through a public to private transaction which valued ERA up to USD \$886 million. Consequently, ERA/ZHSW became a private company after the transaction. This transaction would expand and boost CAT's presence in the Chinese coal mining machinery market according to the press release published by CAT when it announced the transaction to the general public.

5.3 Outcome of CAT's Acquisition of ZHSW

A few months after the close of the transaction, CAT announced that a write-off of over USD \$580 million of ZHSW value in January 2013, which was nearly 70% of the total transaction value in June, 2012.

5.3.1 What Went Wrong on This Well-Publicized Transaction?

According to the news report by Reuters (John 2013), “when it bought ZHSW, CAT had been doing business in China for more than 30 years. It had amassed 20,000 China employees, dozens of manufacturing, research, logistics and parts centers and a broad dealer network. It had nine new facilities under construction, and had just completed the \$8.8 billion purchase of Bucyrus, a mining and earth-moving company with significant China operations”.

For years CAT has been trying to get into the underground coal mining equipment market in China. However, the product offering from CAT did not fit well with the underground long-wall mining conditions for most Chinese coal mines. Thus, the acquisition of Bucyrus International in September 2010, which is a global market leader in underground coal mining equipment, provided CAT with a unique opportunity to tap into the lucrative and fast-growing market in China’s coal mine boom.

Bucyrus had been working with ZHSW for years prior to its acquisition by CAT. Hence, executives at the firm felt that they knew ZHSW well. According to people who are familiar with the situation, “the operating executives feel that they know everything there is to know about ZHSW since they have been working with them over years on product development, technology transfer. The two firms even teamed up in overseas bidding projects”. When the acquisition of Bucyrus by CAT was completed, executives in charge of this transaction at CAT relied heavily on the input and feedback from the Bucyrus operating executives who claimed they knew everything about the company.

This overconfidence leads to a rushed due diligence investigation process. To make things worse, the rules at the Hong Kong Stock Exchange also contribute to this quick and dirty due diligence investigation. In Hong Kong, a potential investor into a publically traded company must disclose whatever they find during the due diligence

investigation to the general public. This particular requirement made it difficult for the potential investor to do a thorough and complete due diligence investigation without causing the fluctuation of the stock price. The third issue is that many Chinese companies obtained its listing in Hong Kong through a “reverse merger” process. This is a process whereby a private company buys a shell company that is already listed and injects its assets into the shell. By doing so, the private business can allegedly avoid the regulatory scrutiny typically involved in the initial public offering process.

On one hand, as the buyer, CAT accused that ZHSW had engaged in “deliberate, multi-year, coordinated accounting misconduct” by the management, which led to a huge loss of CAT’s equity interest in ZHSW. On the other hand, the seller (original owner of ZHSW) argued that they had cooperated fully with CAT during the due diligence process prior to the close of the transaction. CAT did not raise any questions regarding ZHSW’s accounting practice which has been remained unchanged throughout this period of time.

I interviewed a former ZHSW executive and learned that “CAT was very busy with the acquisition/post-acquisition integration of Bucyrus at the time. Transaction of ZHSW was not high on anybody’s priority list. Consequently, the transaction team members were pressured to close the deal within a short period of time. They (transaction professionals) just walked the floor and asked a few questions because they felt that the ex-Bucyrus operation executives already knew all the details of the company. Therefore, there [was] no need for them to dig further into the operations”. However, contrary to what CAT believes, former executives at ZHSW acknowledged that its accounting and finance teams were inexperienced, but denies fraud according to news reports later.

5.4 Case Discussion

It is not uncommon for buyers and sellers to start pointing fingers at each other when things go wrong. However, the fact is that CAT did not conduct a thorough financial/operational due diligence on ZHSW as it should have before it closed the transaction. It may be because the transaction team, supported by the operation executives, believed that it was unlikely to encounter financial inappropriateness with a publically traded company in Hong Kong. It also seems CAT, as a strategic investor, might be too eager to acquire ZHSW because of the fear that competitors had moved into the Chinese market already. If they do not move aggressively and quickly, they would be left behind. Based on this line of reasoning, CAT not only acquired the company in a rush, but also paid a huge premium over its market price.

In the J&J transaction, QDUS spent almost a year trying to negotiate with the provincial SASAC to resolve the gap between two different accounting systems adopted by J&J and International Accounting Standards. When QDUS was discussing possible acquisition of ZHSW, different accounting treatments were the major deal breakers. Failing to reach an agreement with the seller, QDUS decided to walk away. It seems that managers of private equity firms are “less likely to overpay and hence more likely to walk away from a deal than managers from public firms” (Bargeron, Stulz, and Zutter 2007).

In the propositions/T-SOSE model derived from the case discussion of GMM, one of the five critical capabilities at the private equity fund is deal selection/screening. Choosing a right industry and target company are the most important tasks. When we look at the ZHSW transaction, CAT has the required industry knowledge and operating expertise through Bucyrus acquisition. However, somehow it overlooked at the operating details at the target company. CAT assumed everything was fine until it

discovered problems. Some of the issues claimed by CAT do not seem to be trivial, for example, inventory discrepancies. The hydraulic roof support is a product with a huge physical size. Unlike bolts and nuts, it is very easy to account for them if one chooses to do so.

When QDUS was doing due diligence work on ZHSW, the transaction team members spent two months at the site, verifying and reconciling the book with physical inventory. The team members even dug into warehouse receipts and transportation records to verify revenue numbers. There are many unpleasant, but necessary encounters where the seller cannot provide sufficient evidence to support its claim. Instead of a confirmatory due diligence, QDUS's due diligence at ZHSW turned out to be more of a discovery nature.

This deal-selection/screening capability at QDUS made it walk away from the deal whereas the lack of such capability at CAT caused its financial loss. This illustrates the importance of the deal-selection/screening capability to the success or failure of the investment. Having such a capability may not be a sufficient condition for investment success, but it is a necessary condition.

The other issue is the TMT capability. CAT, during its evaluation of the target company, failed to identify and assess the top management team at ZHSW. As acknowledged by the former ZHSW executive, the accounting and finance team is technically incompetent. It is surprising that CAT went ahead and closed the transaction without fixing the deficiency. One of the possible explanations is that CAT did not even know this deficiency at ZHSW before the problem surfaced later.

Chapter 6

INTERVIEWED CASES

6.1 Overview of Interviews

Table 9 Overview of Interviews

Firm ¹	Fund size (USD MM)	Title of informants	Number of Interviews	Fund origin
QDC	1,500	Managing Director	3	US
SLE	180	Partner in Charge	3	China
BGC	75	Partner	2	US
NHJ	1,200	Partner	2	US & China
JLC	1650	Partner	2	China
TTC	680	Operating partner	4	Europe

In order to gain a broader and deeper understanding, I interviewed six PE funds that are operating in China. Table 9 shows the overview of the six PE funds interviewed. The type of funds interviewed ranges from buyout to growth capital. While the fund size ranges from \$75 to \$1.65 billion US dollars, the origin of the funds ranges from US/Europe-based to China-based. With this diverse background of funds, it provides an overview of the transactions regardless of the type, size of fund, and its country of origin.

6.2 Basic Information of the Interviewed Companies

Appendix C Table 21 shows the industry sector, deal size, equity ownership percentage, holding period, and exit status of each of the interviewed companies. The industry sector includes hardware, automotive parts, chemical products, consumer products, travel services, subway system designs, healthcare products and services,

¹ Name of funds are pseudonym

telecommunication, media, and technology. This diverse industry selection was intended to adjust systematic risk in specific industry and business cycles. Due to the early stage of the private equity industry development in China, many of these investments have not been exited by its investors.

Appendix C Table 22 shows the investor's control mechanism, value-added activities provided, if any, typical quote from the informants, lessons learned, and the estimated investment return. It is worth noting that the control mechanism (i.e. full/partial control vs. veto) does not seem to correlate positively with the estimated investment return.

Table 10 Capabilities and Investment Return

	Firm	Deal Screening		Operational improvement	Deal Structuring	Equity	Exit	Estimated IRR
		MKT	TMT					
Successful Cases	LTBF	1	1	1	1	10%	1	60%
	NQP	1	1	1	1	30%	1	45%
	YTS	1	1	0	1	10%	1	43%
	BCT	1	1	1	1	15%	1	38%
	LTS	1	1	1	1	7%	1	36%
	LBYQ	1	1	0	1	15%	1	34%
	LQP	1	1	1	1	10%	1	32%
	BHCP	1	1	1	1	15%	NA	25%
	NDS	1	1	0	1	5%	NA	23%
	BHCS	1	1	1	1	10%	NA	22%
Borderline Cases	LYJG	-1	-1	1	1	30%	1	17%
	TOG	-1	-1	1	1	100%	NA	15%
	NXF	-1	-1	1	1	60%	NA	13%
	YRS	-1	-1	0	-1	5%	1	12%
Failed Cases	TVM	-1	-1	1	1	100%	NA	Negative
	LNM	-1	-1	-1	-1	10%	NA	Negative
	THW	1	-1	-1	-1	70%	NA	Negative
	TCP	1	-1	-1	1	100%	NA	Negative

1= Active action, positive effect; 0=No action; -1= Active or passive action, negative effect.

6.3 Cross-Case Analysis and Discussion

In the previous discussion on the GMM case, I suggested five propositions that include: 1) deal-selection/screening capability, 2) operation-improvement capability, 3) deal-structuring capability, 4) investment-exit capability, and 5) TMT capability. I now use these five propositions to analyze the findings from the cases presented in this study.

6.3.1 Deal-Selection/Screening Capability

Proposition 1---Deal selection/screening is the most important step in the value-creation process by private equity firm, if not done well, investment performance will suffer.

From Table 10, observations can be made that all successful cases have done a good job in the deal-selection/screening process without exception. Investors, including co-investors, not only identified and pursued the right market/industry sectors/target company relative to its knowledge and experience, but also identified/assembled right Top Management Team (TMT) at the company.

TMT members could come from within the fund, from its co-investors, and/or from outside service providers. For example, in the case of LTBF, SLE (PE fund) spent almost two years working with the company on strategic consulting engagements. At the time the company wanted to change its business model from selling its product indirectly through a trading company to direct sales to its customers. Because the industry network SLE had, the partner at the fund took the company directly to its global customers. The company could not do this on its own because of its product-quality issue and lack of communication skill.

By means of strategic consulting engagement, SLE was able to demonstrate its value-added capability to the company. Consequently, the PE fund was later invited to invest in the company. In addition, the PE fund was able to beat the competition from

other potential investors who lack the industry knowledge. Selection of this particular target company to invest is a result of industry knowledge, experience of the private equity fund, and close working relationship established prior to the investment decision being made. Through this close working relationship, the investor was able to observe and identify TMT members at the company.

BHCS is another example. BHCS is a service company that provides installation maintenance service on imported medical equipment at Chinese hospitals. As the living standard improved, many Chinese hospitals imported medical equipment from GE and other healthcare service equipment makers. Typically, after one year of service warranty, the foreign equipment manufacturers do not provide service or maintenance on the equipment sold due to cost considerations. Therefore, there is a market need for local Chinese companies to provide such a service. BHCS is a company started by a group of former GE healthcare professionals who have the knowledge of the imported equipment as well as the need at Chinese hospitals. The company has revenue of over RMB 500 million, has installed 20,000 pieces of equipment at over 10,000 hospitals in China during the last 10 years. BGC invests into the company because of its industry knowledge and resources in the health care industry in the US and European markets. The investment theme from BGC is that if the BHCS can grow to certain scale, there are many smaller foreign health care equipment makers that need service/maintenance people on the ground in China to serve their products in the fast-growing Chinese market.

“We have a lot resources in [the] US and Europe that we can bring to those small and mid-sized companies that sell their products to China,” said the BGC partner interviewed.

The CEO at BHCS does not speak English, so he cannot really talk directly to the US companies by himself. Therefore, the fund partner took the CEO and his senior managers to the US and visited many companies in five cities. The target US companies are not as big as GE, but they are still publically traded companies. They used distributors in China in the past, but have no idea of how their equipment is being served in China. They definitely need this service.

“We add value by opening up new customers bases for BHCS in [the] US and Europe,” said the BGC partner.

The GMM case also illustrate this point. When QDUS considers the investment into GMM, it does not have industry knowledge in the coal mine equipment industry within the fund infrastructure. However, it does have experience in the industrial equipment manufacturing space. In addition, one of the partners from its co-investor is an industry insider, who has over 30 years of experience in the coal mine equipment sector. Furthermore, QDUS also hires a former executive who is experienced in the heavy machinery making from working at a US-based multinational company. This collective industry knowledge and expertise from the investor group helped QDUS select the GMM investment opportunity. GMM also shows the screening capability at work in understanding the target company before the investment is made. QDUS spent almost a year doing due diligence work at the company, identifying potential risks and formulating strategies and tactics to minimize the risks. This effort before investment enables QDUS avoid any unexpected surprises once it takes over the operations at the company.

On the other hand, almost all the failed cases did not do a good job in the deal-selection/screening process. They either did not select/screen the right industry/sector/target company, or did not have the right TMT line up for operation.

In the case of TVM, for example, QDC (PE fund) is an experienced investor in China with a dozen successful investments in heavy industry manufacturing sector. However, TVM is a cable TV advertisement consolidation play, which is an unfamiliar industry to the fund. Without much of industry knowledge and expertise from within, the fund has to rely on the entrepreneur/founder for operation. Because of competitive forces from other potential investors, the fund rushed into the transaction, did not have a thorough due diligence investigation conducted on the background of the CEO, who turned out to be someone not trustworthy and had integrity issues in the past. “Had we known the background of the CEO, we would have not invested into this company,” the fund partner later commented.

Furthermore, in the case of THW, the investor seems to have identified the right industry, but failed to assemble the right TMT at the company. The investor recruited an experienced CEO from an industry leader to run a small family business. Even though the CEO is an industry expert, he cannot work well with the founder/entrepreneur, who is still a minority shareholder at the company. This conflict and incompatibility of management style created a huge turnover of management personnel at the company. Thus, the financial performance of the company was negatively impacted.

From the discussion on ZHSW case in Chapter 5, we also find a similar situation with CAT. CAT, as an experienced corporate acquirer, failed in the due diligence process. Even though it acquired the necessary industry knowledge and operating expertise through the Bucyrus deal, it did not perform a thorough due diligence investigation, particularly in regard to revenue recognition and inventory issues. The failure at deal screening caused the huge negative financial impact.

Through discussion of above examples, it appears that investors who do not have the capability or did not do well in the deal-selection/screening process, are very likely to experience negative financial consequences. While proposition 1 alone is not a sufficient condition for financial success, it is a necessary condition for success.

6.3.2 Operation-Improvement Capability

Proposition 2---Private equity firms must provide value-added services on operation improvement at the invested company to create value. Financial engineering alone cannot generate the expected financial return.

Looking at the proposition 2, operation-improvement capability, proposed by this paper, there are also some interesting observations to be made. For all of the successful cases, investors, after the first important step is done right, also actively provide value-added services to the invested company in operational improvement. These services include, but are not limited to, strategic consulting, global network and resources, sales/marketing expansion activities to reach broader geographic coverage, introduction of new technology, improvement on product quality, implementation of more transparent and efficient systems, providing finance/accounting and legal compliance support, etc.

For example, LTBF is a privately owned chemical company producing chemical additives. Upon investment, PE funds recommended two retired industry/operational experts who have been working for the global chemical companies for decades.

Right after joining the company, the two experts started to lead the company toward working on its products' quality, technology and process improvement, expanding production capacity from 100 MT/year to 200 MT/year. All of a sudden, with the improved product quality and production process and capacity, the revenue at the

company dramatically increased and moved from being a second-tier player to number two in the industry.

As the company continues to improve, with the help of the two experts, it also turns product waste into a new product offering. Thus, the company becomes an environmentally friendly operation. This effort not only increases revenue by adding new products, but also saves on the cost of industrial waste treatment.

According to the partner at the fund, “we added value in providing [a] global vision for the company, [led] the quality and process improvement efforts, changed product waste into new product offering, trained mid-level management team”.

Another example is BCT, which is the largest Chinese refrigerated trucking company. BGC (PE fund) and its co-investor, which is a US-based industry player invested into this young Chinese company based out of the Henan province. Investors helped the company design product, with its production process, and also sent an American engineer to work at the Chinese company in the Henan province for an extended period of time. “We are not just putting in money and [attending] board meetings, or being an advisor only, we actually roll up our sleeves and work side by side with employees at the company,” said the fund partner interviewed. In addition to help on product and process design, BGC also helped the company on quality assurance and even install an ERP system at the company to improve productivity. As a result of this effort by investors, the revenue at the company tripled in a period of 3 years.

In addition to capital contribution, active private equity investors also provide value-added services on operational improvement to the invested company. A study (Acharya, Hahn, and Kehoe 2009) shows that value-added services would be in different forms or formats. “Top-line initiative” and “bottom-line initiative” are common approaches. While the “top-line initiative” approach means that investors would focus

on new products, new channels, new geographies, existing geographies, and existing customers; the “bottom-line initiative” approach means that the investors would focus on helping 1) supply chain management, 2) overhead reduction, 3) process efficiency (e.g., process reengineering), 4) working capital reduction, 5) capex reduction, and 6) other cost reduction.

My findings show that, more often than not, the invested company would embrace the “top-line initiative” approach easier and quicker because it instantly enhances revenue. However, it might be difficult for the “bottom-line initiative” approach to be implemented promptly since it involves changing the existing processes, introducing a more rigorous quality control mechanism and more efficient process layout, cost cutting, etc. This phenomena is also evidenced by a research study (Kester and Luehrman 1995), which observes that private equity investment in the US has become more closely associated with seeking growth opportunities than with cost reduction and asset stripping.

It is this type of value-added activities that helped the invested company grow to the next level of corporate development. Investors, in the meantime, earned sincere appreciation from the founder/entrepreneur.

The four borderline cases illustrated in Table 10 show some interesting characteristics. Shortly after an investment is made from investors, some unexpected changes occurred, either in market or with TMT members. In the case of TOG, the company is a market leader in the US for CNG and LNG regulators. TTC (PE fund) invested into this company in anticipation of the explosive growth opportunity for LNG usage in China. For this reason, investors paid a premium for the company and overlooked product design and quality problems discovered during the due diligence investigation. When the oil and gas market collapsed during the last two to three years,

the anticipated market boom for LNG usage in China did not occur. To make things worse, the product quality issue became serious with Chinese customers. The CEO and management team did not find the root cause of the problem. Instead of improving its quality, the management team blamed customers for not properly installing its product during the application process. The CEO brought in by the investor used to work for big multinational companies, but was not well experienced in working with a smaller company that did not have depth of the management team. The management team is trying to work hard in the operational-improvement area. This investment almost becomes a turn-around situation.

The other three cases (LYJG, NXF, and YRS) have almost a similar situation in that with a misjudgment of the market, unexpected behavior, and/or change of TMT members, the expected return on investment did not turn out to be what investors anticipated.

YRS is a subway rail system design company. The company is an SOE and a dominant player in its market niche. When invested into YRS, JLC (PE fund) expects market growth opportunities due to the government-led infrastructure building boom of subway systems throughout cities in China. When structuring this investment, JLC can only invest and own 5% of equity at the company without a board representation. Therefore, JLC has on influence on the management decision or veto power.

The management team at the company is solid, operationally. Yet, as a SOE, there is no meaningful incentive system in place at the company. One year after JLC's investment, the company went public in HK. However, the company did not perform as well as it forecasted. In addition, the expected market boom for the subway system building did not take place due to the austerity measures taken by the government on infrastructure projects nationwide and general economic slowdown.

As a minority investor without board representation, JLC can only provide value-added activities during the IPO process because the management team is not familiar with the capital market.

“We view YRS investment as a pure financial play. To us, this is a mature business with a proven business model. We think the management team is solid and know their business. However, we misjudged the market demand and made a mistake by accepting no veto power arrangement,” said the fund partner interviewed.

This case demonstrates both proposition 1 & 3 (capabilities of deal selection and deal structuring) are important factors for investment return considerations. As a PE investor, if you do not have the knowledge of the sector in which the target company is operating, and have no control mechanism to influence the management decision when you structure the deal, it would be better off killing the deal and walking away.

NXF is in a very similar situation. NXF is a company that is in the consumer product business. When NHJ (PE fund) invested into the company, they expected growth opportunities for its products. However, the unexpected change of market and the underperformance of the CEO made the investment suffer.

“We were dragged into being a majority shareholder. The combination of unexpected market changes and the underperformance of the CEO put our investment return below our expectation,” said the fund manager interviewed.

The LYJG case is a different example. The company is a startup by a group of former executives at a multinational chemical company. These executives are technically competent. The product at the company is “Sealant Glue”, which is a chemical additive with a 70% margin. When it starts, the company does not have its own manufacturing facility but outsources its production.

Shortly after the SLE (PE fund) invested into LYJG, the management team decided to build a factory and started to make a product to compete with its customer despite the advice from the PE investor.

“We strongly [recommended the] CEO do not get into competition with its customers. Despite our advice, the company went to compete directly with its customers. As a result, it suffered [a] huge loss of revenue on its core products,” said the fund partner interviewed.

The fund partner had to jump in to help run the company as a temporary CEO. This investment ended up as a turn-around situation. “If we did not have industry knowledge or operation experience, we could not [have saved] the company. Unwillingly, we became the largest shareholder in the business.”

The founders at the company are very competent engineers. For instance, they make a production line, which costs RMB 1 million, but the similar German-made production line would have costed Euro 1 million. “We overlooked the team. We should have paid more attention to leadership and business acumen in addition to the technical capability,” said the fund partner.

“Looking back at this company, we did not have a thorough understanding of the business and its people. We [felt] comfortable with the business because we [knew] the industry, but [ignored] the top management team members and their capabilities, especially their business acumen,” according to the fund partner.

The cases of LYJG and NXF show that propositions 1 & 5 are closely related to the investment return expected by the investors. Missing one of these capabilities would lead to financial difficulties.

Interestingly enough the investors in all four cases stick to their underperforming deals at this moment hoping they can make a turn around and earn a decent return on

their investments. This occurrence of “stick to dogs” is also evidenced by (Acharya, Hahn, and Kehoe 2009). The above cases show the importance of both selecting a right industry and assemble the right TMT at the invested company simultaneously. These two factors are equally important first steps for a successful investment project.

This again illustrated that proposition 1 (deal-selection/screening) capability at the investor level is critical to the success or failure of the investment performance. While deal-selection/screening capability alone does not guarantee a successful investment return, it is the most important step that investors cannot afford to not do right. This also illustrated the critical role of the TMT at each company.

The failed cases of TCP, LVM, TVM, and THW also show some interesting traits. In the case of TCP, the company has been in the automotive parts business, but also engaged in electronics (cellphone and notebook) manufacturing and distribution business. When TTC (PE investor) decides to move TCP to Asia due to the fact that 70% sales are from Asia, it also wants to take advantage of growth opportunities in Asia by implementing a roll-up strategy.

While the strategy seems plausible, it has to let go of the Europe-based top management team and move its head office to Asia. Obviously, TTC has to localize the top management team, recruiting local management talents to run the business. When the 2008 financial crisis came, the electronic business at the company suffered, gross margin was down by 50%, and top management team members, including CEO, CFO, and others changed too many times. Each time a newly hired CEO brought in a different mid-level management team. While the TMT became a revolving door, the company also implemented its roll-up strategy, acquiring other smaller competitors.

“[The] strategy to relocate to Asia is successful, but [the] change of people [in the] top management team made the business [suffer],” according to the fund partner interviewed.

TTC did not provide any value-added services to the invested company because it does not have the infrastructure in-house. It has to fully rely on outside assistance. The investor does not communicate with the TMT on critical operating issues in a timely manner. As a result, by the time the investor finds out things went wrong at the company, it is often too late to do anything. Then, the investor replaces the CEO and other senior executives in the hope that the company would get back on track. Because of this hands-off approach adopted by the investor, the TMT becomes a revolving door. Key management positions were changed numerous times and the company is struggling in the marketplace.

Another failed case, this time with LNM, may also illustrate this point. LNM is a company that makes plastic pipes used for oil drilling and exploration applications. The technology is a special PVC pipe extrusion at near-melting point. Inserting this inner pipe inside a steel pipe increases the speed of oil flow. Obviously, there is a huge market for this product. It is also good for defense applications because it makes pipes portable.

This technology is verified by the German market leader. SLE (PE fund) invested into the company valued at eight times the net profit. One month after its investment, a competitor (a SOE fund) invested in the company valued at 13 times the net profit.

Since SLE does not have the industry knowledge, it has to rely solely on the company CEO and its team for operation. Since its investment, the SOE fund has tried to kick out the SLE, but the co-investors fight with each other. SLE tries to offer assistance, but the company CEO and its team ignore them.

“There [have been] no board meetings since we invested. We tried to ask them to buy back our equity without success. It has been three years so far. We are not able to get our investment back. We, in fact, write it off,” said the SLE partner interviewed.

The cases of TCP and LNM illustrate proposition 1 (deal selection/screening) & 5 (TMT) at work. In the case of TCP, the investor failed to identify and assemble a TMT that can run the business and implement and support its strategic initiatives. In the case of LNM, the investor failed at the deal-selection process, as well as in identifying the right TMT member (co-investor). Both investments turned into financial loss for the investors.

In general, investors need to make sure that they invest in an industry that they know inside and out. If the investors do not have the required industry knowledge, they should seek help from other sources. In addition, they also have to make sure that top management teams at the company are solid so that the execution would be carried out without much outside assistance. Depending on the specific company situation, investors could help with the operational-improvement initiatives at the company, if needed.

The cases of LBYQ, NDS, and YTS are exceptions. Investors did not provide much value-added services because the TMT at the company are competent and operationally solid. Therefore, there is no need for the investors to jump in and offer operational support. However, these cases show that propositions 1, 3, 4, and 5 are at work.

Findings from the above examples show that the operational-improvement capability from the investor would help greatly with the expected financial return of the investment. In the early days of the private equity industry, pure financial engineering maneuvers were sufficient to earn investors a good return on their investment. Therefore, the operational-improvement capability may not be as important then as it is

now due to increased competition amongst private equity firms. With the low-hanging fruits taken, private equity firms nowadays must work hard to provide value-added services to its invested companies in addition to its capital investment.

6.3.3 Deal-Structuring Capability

Proposition 3---A well-designed deal structure will increase the probability of financial success for private equity transactions.

Looking at proposition 3 suggested by this paper---deal-structuring capability means investment ownership, control mechanism, and tax planning in this context.

As illustrated in Table 10, it is interesting to note how the control mechanism at work is a minority investor. According to one fund partner, “we can never force the entrepreneur/founder to do anything if he does not want to, all we can do is to stop him from doing something since we have the veto right, i.e. negative control.”

Consequently, more often than not, CEOs may reject the competent professionals that investors recommend be added to the TMT. In this case, investors need to keep trying until an acceptable professional is found and accepted by the CEO/entrepreneur. “We will keep trying until we succeed,” said the partner interviewed.

In contrast to perceived wisdom, in all of the successful cases listed in Table 10 investors do not have any controlling equity stake, which seems to suggest that the ownership percentage does not matter much relative to financial performance. Their ownership percentage ranges from 5% to 30%, which are typical minority/growth capital investments, not buyout transactions. However, each investor has an effective control mechanism (veto power) with the invested company. Despite being a minority investor, every case demonstrated decent financial returns.

On the other hand, in the cases of TVM and TCP, even though the investors have 100% ownership and full operational control, they still failed miserably. This indicates

that the deal-structuring capability, i.e. ownership percentage and control mechanism, are only meaningful if and when investors have selected the right industry to invest, and was able to provide value-added services to the invested company. The findings of both TVM and TCP cases support this point.

6.3.4 Investment-Exit Capability

Proposition 4---Capability of investment exit would be the last but not least critical step. Investment return will not be realized unless it is done properly.

Investment-exit capability means that investors have the capability to help the invested companies with its network and resources when it exits the investment and earn a well-deserved financial return.

Private equity is a young and growing industry in China. As such, it has a history of less than 10 years. Most, if not all, of the private equity firms are in their first fund cycle, i.e. raised capital, invested into project, but have not yet exited their investment. Therefore, there are only a few buyout transactions that can be studied in this setting. Most sample cases in this study are growth capital investments. There are two possible explanations: 1) unlike mature private equity funds operating in the developed economies, most newly formed PE firms in China do not have an operation team at the fund level which can provide value-added services, 2) some private equity firms are pure financial investors who do not want to get involved in the operations of the company it invested. While there are similarities between buyout and growth capital transactions, differences do exist. The major difference is the influence from the fund to the invested companies. Typically, the sponsor of the buyout transaction would have more influence on the portfolio company, while growth capital may only have veto power.

Shown in Table 10, seven of the ten successful cases, demonstrate the investment-exit capability to the investor. For example, in the case of LTBF, the investor took the

leading role in promoting the company being listed since the management team at the company does not have any relevant experience or business network to satisfy the needs of the company. In the case of NQP, the investor was also playing a critical role in the exit. In fact, the original owner of the company accepted the investor mainly because of its business network and its reputation and skill set in the Chinese investment-banking world. The YTS case displayed a similar, but slightly different flavor. The original owner had to rely on the investor (PE fund) for a management incentive system design and business network for the initial public offering initiative.

6.3.5 TMT Role at the Deal Level

Proposition 5--- TMT is important for every phase of the investment process at the private equity firms. Without a capable TMT assembled, no financial return can be expected.

In every case observed above, the critical role of TMT at an invested company stands out. Investors could have flawlessly completed the process in deal selection/screening, provided value-added services on operational improvement, and designed the appropriate deal structure and control mechanism, yet the investment may still fail due to the TMT issue.

As discussed previously, TMT members include project leaders from the investor/co-investor, operating executives from the invested company, and/or executives from outside service providers. Each capability at the investor has to be displayed by TMT members in executing the reformulated corporate strategy, achieving operational improvement, and ultimately delivering the financial performance expected by the investor. From the case discussed above, observations can be made that each time there is a problem at the TMT level, no matter if it is a CEO, founder/entrepreneur, co-

investor, and/or other key TMT members, the financial performance/investment return will be compromised, if not failed.

Chapter 7

CONCLUSIONS

7.1 Conclusions

Despite extensive research conducted on PE fund investments, it is surprising that so little research has actually been conducted on the value-creation process at the individual investment project level, which is the most basic unit of value creation. The purpose of this study is to explore the process of value creation at the deal level and reveal the “secret recipe” of PE funds. By studying the process of value creation, I hope to contribute to the existing literature in the following aspects:

7.2 Contributions

1. My findings show that value creation at the PE investment starts with deal selection/screening. This capability at PE includes identifying the appropriate industry/sector and the target company. Industry selection is a result of relevant industry knowledge and experience at the investor’s level. If such specific industry knowledge and experience is absent, then the PE investor should acquire it through its co-investor, and/or service providers. In addition, a complete and thorough due diligence investigation must be conducted. The DD process should be more of a “discovery” rather than “confirmatory” in nature. Investment decisions should not be made until investors feel completely comfortable with the target company and its management team. Furthermore, identification and assessment of the TMT members at the target company also plays a critical role. Without a capable TMT in place, PE firms will be better off walking away from the investment opportunity.

2. Secondly, my findings show that operational improvements led by PE firms are a major source of value creation for PE investments, particularly when financial leverage is not available (such as in China). Operational improvements include revenue-enhancing initiatives and productivity-boosting initiatives. These types of value-added activities from the investor helped greatly with the expected financial return of the investment. The capability of leading and executing operational improvements at the invested companies becomes a differentiating factor for PE firms. Unlike the early days of the private equity industry when pure financial engineering maneuvers are sufficient enough to earn investors a good investment return, the operational-improvement capability becomes the core competency at PE firms now due to increased competition amongst private equity houses. With the low-hanging fruits taken, private equity firms nowadays must work hard to provide value-added services to its invested companies in addition to its capital investment.
3. Thirdly, my study findings show that the ownership percentage does not seem to matter much relative to financial performance. An effective control mechanism with the invested company is more important and meaningful. It is surprising to find that in all of the successful cases listed in Table 10 investors do not have a controlling equity stake, but instead, each investor has an effective control mechanism (veto power) with the invested company. Despite being a minority investor, every case demonstrated decent financial returns.

While a controlling equity stake may help the investor achieve its financial goals, it is not a guarantee for success. In the cases of TVM and

TCP, even though the investors have 100% ownership and full control of the company, they still failed miserably. This indicates that the deal-structuring capability, i.e. ownership percentage and control mechanism, are only meaningful if and when investors have selected the right industry and target company to invest, and are able to provide value-added services to the invested company.

4. Fourthly, findings of this study also show that the investment-exit capability at the PE firm level also helps enhance financial success. As shown in Table 10, seven of the ten successful cases, demonstrate the investment-exit capability to the investor. For example, in the case of LTBF, the investor took the leading role in promoting the company being listed since the management team at the company does not have any relevant experience and business network to satisfy the needs of the company. In the case of NQP, the investor was also playing a critical role in the exit. In fact, the original owner of the company accepted the investor mainly because of its business network and its reputation and skill set in the Chinese investment-banking world. The YTS case displayed a similar, but slightly different flavor. The original owner has to rely on the investor (PE fund) for a management incentive system design and business network for the initial public offering initiative.
5. Finally, in my previous discussion of the GMM case, I proposed the T-SESO model. TMT capability is the center piece of this model surrounded by deal-selection/screening, operational-improvement, deal-structuring, and investment-exit capabilities. My research findings show that the TMT factor impacts every stage of the investment process. As discussed, the

TMT members include project leaders from the investor/co-investor, operating executives from the invested company, and/or executives from outside service providers. Each capability for the investor has to be displayed by TMT members in executing the reformulated corporate strategy, achieving operational improvement, and ultimately delivering the financial performance expected by the investor. Generalizations can be made that each time there is a problem at the TMT level, no matter if it is a CEO, founder/entrepreneur, co-investor, and/or other key TMT members, the financial performance/investment return will be compromised, if not failed.

7.3 Limitations and Future Research

As with all case study research, an important issue is the degree to which the findings are generalizable to a larger sample size. This is ultimately an empirical question that will be answered only by further studies in the future. However, a variety of indicators suggest that the findings of this study may be generalizable to other Chinese PE investment projects. For example, like the cases in this study, the majority of the Chinese private equity funds are in its first fund cycle. Therefore, the challenges faced by the PE firms are the same, i.e. deal selection/screening, operational improvement, deal structuring, investment exit, and identification and assembly of the TMT.

While the findings of this study provide a meaningful and useful analytical framework for PE professionals for their investment activities, this study may also have inherent bias due to the small size of samples selected. In addition, the data collected on estimated financial returns are estimated only. It may or may not accurately reflect the real financial return of the studied investment projects. Furthermore, as mentioned in the methodology section, the 20 cases included in this study are provided by six

different PE funds. As such, some of investment projects by the same fund may carry the same investment philosophy and/or style which reflects the particular style of the investor. Future studies with a larger pool of PE funds with audited financial and operating datasets may provide more solid evidence to test the propositions I suggested in this study. PE funds, as a private entity, may or may not be willing to share their data publically due to their confidential obligations to their LPs. Non-disclosure and privacy rules at the PE fund level presents a challenge to researchers on this subject.

My case findings also suggest that the majority of investment types in this study coincide with the development stage of the PE funds investment in China. During this stage of development, the growth capital investment is by far the major investment type whereas buyout transactions are still rare. With the growth capital investment, the corporate control and governance issues become a critical factor impacting investment returns. Findings from my study show that the growth capital type of investment in China is employing negative control, i.e. a veto power system to realize corporate governance and control purpose. In reality, veto power, as the last resort in conflict resolution, may or may not be the best way to resolve a conflict in a corporate boardroom setting, especially in China where consensus building is a more dominant practice rooted in the Chinese culture. Whenever veto power is used, it most likely creates a “hung jury” effect that would sacrifice efficiency in making decisions regarding corporate affairs. Therefore, future studies on the relationship between ownership stake and control mechanism may provide some insight into the inner workings of the growth capital investment type.

Future research should focus on SOE reform in China. Even though my study on GMM shows that SOE reform can be successfully accomplished through a privatization process, many large SOE companies that operate in the “strategic” industries may or may

not be appropriate for this process due to national security concerns. For example, telecommunication companies, oil and gas exploration, utility operators, and state electricity grids are a few such industries that are still monopolized and dominated by SOEs. These companies are hardly profitable if all the government subsidies are taken away. Reforming and revitalizing these SOEs will not only improve their operating efficiency, but also help the private companies who are suppliers or customers of these SOEs. Therefore, the impact of SOE reform will have a ripple effect on the Chinese economy as a whole.

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APPENDIX A

IRR FROM INVESTMENT IN GMM VERSUS PME

Table 11 QDUS Cash Flow from Investment in GMM

Date	USD in mm			Exit Equity %	Notes
	Cash Outflow	Cash Inflow	Total Cash Flow		
12-Apr 2006	40.00		(40.00)		Acquisition of J&J,RMB 320mm, 1 USD=8.009 RMB
10-Sep 2007	1.60		(1.60)		
8-Nov 2007	8.46		(8.46)		Acquisition of HNLW
20-Nov 2007	0.03		(0.03)		
17-Dec 2009		10.00	10.00	1.22%	Redemption of preferred shares to QDUS before IPO; Market Cap=IPO price 4.88HK\$ * 1,300 mm shares/7.74
23-Dec 2009		33.40	33.40	4.08%	HK\$=USD 819.6mm
10-Jan 2010	8.40		(8.40)		Follow-up investment on HNLW, RMB57.5mm, 1USD=6.82RMB
10-Feb 2010		103.50	103.50	12.63%	Redemption of preferred shares and payments to QDUS through IPO
14-Oct 2010		133.11	133.11	13.46%	Trade sale of 175mm shares*(closing price HK\$6.55*90%)=1,031.625 mm HK\$,1USD=7.75HK\$
30-Dec 2011		584.29	584.29	41.14%	Exit from acquisition: 534.8mm shares* 8.5HK\$=4,545.8mm HK\$, 1 USD=7.78 HK\$

Table 12 IRR Calculation Process for Investment in GMM

Date	QDUS	
	Cash Flow (USD in mm)	Exit Equity (%)
12-Apr-2006	(40.00)	
10-Sep-2007	(1.60)	
8-Nov-2007	(8.46)	
20-Nov-2007	(0.03)	
17-Dec-2009	10.00	1.22%
23-Dec-2009	33.40	4.08%
10-Jan-2010	(8.40)	
10-Feb-2010	103.50	12.63%
14-Oct-2010	133.11	13.46%
30-Dec-2011	584.29	
IRR	80.40%	

Table 13 PME Calculations for Shanghai Composite Index

Date	Shanghai Composite Index					
	Index ²	Index performance	Theoretical investment ³ (USD in mm)	Shares number (in mm)	Price per share (in USD)	Cash flow ⁴ (USD in mm)
12-Apr 2006	1,360		40.00	40.00	1.00	(40.00)
10-Sep 2007	5,355	293.8%	159.10	40.41	3.94	(1.60)
8-Nov 2007	5,330	-0.5%	166.82	42.56	3.92	(8.46)
20-Nov 2007	5,293	-0.7%	165.68	42.57	3.89	(0.03)
17-Dec 2009	3,179	-39.9%	98.30	42.05	2.34	1.21
23-Dec 2009	3,073	-3.3%	91.15	40.34	2.26	3.87
11-Jan 2010	3,212	4.5%	103.67	43.89	2.36	(8.40)
10-Feb 2010	2,982	-7.2%	84.09	38.35	2.19	12.15
14-Oct 2010	2,879	-3.5%	70.26	33.19	2.12	10.93
30-Dec 2011	2,199	-23.6%	53.66	33.19	1.62	53.66
					PME	7.96%

² Index refers to closing index on the day. If the market is closed, the closest trading day is chosen.

³ Unit is USD in millions except for "index", "index performance", "share numbers", "IRR", and "PME".

⁴ Numbers within brackets in the "Cash flow" column indicate cash out; on the contrary, numbers without brackets in the "Cash flow" column indicate cash in.

Table 14 PME Calculations for Shenzhen Composite Index

Date	Shenzhen Composite Index					
	Index	Index performance	Theoretical investment (USD in mm)	Shares number (in mm)	Price per share (in USD)	Cash flow (USD in mm)
12-Apr 2006	345		40.00	40.00	1.00	(40.00)
10-Sep 2007	1,479	328.7%	173.08	40.37	4.29	(1.60)
8-Nov 2007	1,321	-10.7%	163.05	42.58	3.83	(8.46)
20-Nov 2007	1,327	0.5%	163.81	42.59	3.85	(0.03)
17-Dec 2009	1,168	-12.0%	142.43	42.07	3.39	1.76
23-Dec 2009	1,127	-3.5%	131.83	40.36	3.27	5.60
11-Jan 2010	1,189	5.5%	147.48	42.79	3.45	(8.40)
10-Feb 2010	1,117	-6.1%	121.05	37.39	3.24	17.50
14-Oct 2010	1,206	8.0%	113.11	32.36	3.50	17.59
30-Dec 2011	866	-28.2%	81.22	32.36	2.51	81.22
					PME	18.40%

Table 15 PME Calculations for SSE SME Composite Index

Date	Index	Index performance	SSE SME Composite			
			Theoretical investment (USD in mm)	Shares number (in mm)	Price per share (in USD)	Cash flow (USD in mm)
12-Apr 2006	1,627		40.00	40.00	1.00	(40.00)
10-Sep 2007	5,718	251.4%	142.18	40.46	3.51	(1.60)
8-Nov 2007	5,169	-9.6%	136.99	43.12	3.18	(8.46)
20-Nov 2007	5,257	1.7%	139.34	43.13	3.23	(0.03)
17-Dec 2009	5,364	2.0%	140.44	42.60	3.30	1.73
23-Dec 2009	5,255	-2.0%	131.98	40.86	3.23	5.61
11-Jan 2010	5,591	6.4%	148.82	43.31	3.44	(8.40)
10-Feb 2010	5,360	-4.1%	124.66	37.84	3.29	18.02
14-Oct 2010	6,318	17.9%	127.16	32.75	3.88	19.78
30-Dec 2011	4,295	-32.0%	86.44	32.75	2.64	86.44
					PME	20.00%

Table 16 PME Calculations for Hang Seng Index

Date	Index	Index performance	Hang Seng Index			Cash flow (USD in mm)
			Theoretical investment (USD in mm)	Shares number (in mm)	Price per share (in USD)	
12-Apr 2006	16,310		40.00	40.00	1.00	(40.00)
10-Sep 2007	23,999	47.1%	60.46	41.09	1.47	(1.60)
8-Nov 2007	28,760	19.8%	80.91	45.88	1.76	(8.46)
20-Nov 2007	27,771	-3.4%	78.15	45.90	1.70	(0.03)
17-Dec 2009	21,347	-23.1%	59.34	45.34	1.31	0.73
23-Dec 2009	21,328	-0.1%	56.87	43.49	1.31	2.42
11-Jan 2010	22,411	5.1%	68.16	49.61	1.37	(8.40)
10-Feb 2010	19,922	-11.1%	52.94	43.34	1.22	7.65
14-Oct 2010	23,852	19.7%	54.85	37.51	1.46	8.53
30-Dec 2011	18,434	-22.7%	42.39	37.51	1.13	42.39
					PME	1.23%

Table 17 PME Calculations for S&P 500 Index

Date	S&P 500 Index					
	Index	Index performance	Theoretical investment (USD in mm)	Shares number (in mm)	Price per share (in USD)	Cash flow (USD in mm)
12-Apr 2006	1,288		40.00	40.00	1.00	(40.00)
10-Sep 2007	1,451	12.7%	46.66	41.42	1.13	(1.60)
8-Nov 2007	1,474	1.6%	55.86	48.81	1.14	(8.46)
20-Nov 2007	1,439	-2.4%	54.56	48.83	1.12	(0.03)
17-Dec 2009	1,096	-23.8%	41.05	48.24	0.85	0.51
23-Dec 2009	1,120	2.2%	40.24	46.27	0.87	1.71
11-Jan 2010	1,146	2.3%	49.57	55.71	0.89	(8.40)
10-Feb 2010	1,068	-6.8%	40.36	48.68	0.83	5.83
14-Oct 2010	1,173	9.8%	38.36	42.13	0.91	5.97
30-Dec 2011	1,257	7.2%	41.11	42.13	0.98	41.11
					PME	-1.31%

Table 18 PME Calculations for Dow Jones Industrial Average

Date	Dow Jones Industrial Average					
	Index	Index performance	Theoretical investment (USD in mm)	Shares number (in mm)	Price per share (in USD)	Cash flow (USD in mm)
12-Apr 2006	11,129		40.00	40.00	1.00	(40.00)
10-Sep 2007	13,127	18.0%	48.78	41.36	1.18	(1.60)
8-Nov 2007	13,266	1.1%	57.76	48.45	1.19	(8.46)
20-Nov 2007	13,010	-1.9%	56.67	48.47	1.17	(0.03)
17-Dec 2009	10,308	-20.8%	44.35	47.88	0.93	0.55
23-Dec 2009	10,466	1.5%	43.20	45.93	0.94	1.84
11-Jan 2010	10,663	1.9%	52.41	54.70	0.96	(8.40)
10-Feb 2010	10,038	-5.9%	43.11	47.79	0.90	6.23
14-Oct 2010	11,096	10.5%	41.24	41.36	1.00	6.41
30-Dec 2011	12,217	10.1%	45.40	41.36	1.10	45.40
					PME	0.73%

Table 19 PME Calculations for NASDAQ Composite Index

Date	NASDAQ Composite Index					
	Index	Index performance	Theoretical investment (USD in mm)	Shares number (in mm)	Price per share (in USD)	Cash flow (USD in mm)
12-Apr 2006	2,314		40.00	40.00	1.00	(40.00)
10-Sep 2007	2,559	10.6%	45.84	41.45	1.11	(1.60)
8-Nov 2007	2,696	5.4%	56.75	48.71	1.17	(8.46)
20-Nov 2007	2,596	-3.7%	54.67	48.73	1.12	(0.03)
17-Dec 2009	2,180	-16.0%	45.35	48.14	0.94	0.56
23-Dec 2009	2,269	4.1%	45.28	46.17	0.98	1.92
11-Jan 2010	2,312	1.9%	54.53	54.58	1.00	(8.40)
10-Feb 2010	2,147	-7.1%	44.25	47.69	0.93	6.40
14-Oct 2010	2,435	13.4%	43.43	41.27	1.05	6.75
30-Dec 2011	2,605	7.0%	46.46	41.27	1.13	46.46
					PME	1.33%

Source: <http://vip.stock.finance.sina.com.cn/mkt/>

APPENDIX B

FINANCIAL COMPARISON WITH INDUSTRY PEERS

Table 20 Financial Comparison with Publically Listed Competitors in China

Financials (RMB in mm)	Year	GMM	ERA Mining ⁵	SANY INT'L ⁵	China Coal ⁶	Tiandi ⁷	Zhengzhou Coal ⁸
Revenue	2007	858	138	N/A	3,525	3,287	2,358
	2008	1,280	1,108	1,147	4,634	4,979	3,722
	2009	1,520	1,405	1,901	5,949	6,600	5,160
	2010	1,943	1,769	2,683	7,071	7,969	5,631
	2011	2,098	1,953	3,780	8,129	12,009	6,525
CAGR ⁹ of Revenue	2007- 2011	25.06%	93.91%	48.83%	23.23%	38.25%	28.98%
Total Asset	2007	1,790	429	N/A	3,476	3,996	2,456
	2008	2,159	994	3,122	5,223	6,835	3,737
	2009	2,205	1,635	5,459	7,202	8,507	4,753
	2010	3,775	3,381	5,883	9,238	10,560	8,117
	2011	4,147	5,662	7,466	11,285	13,966	9,026
CAGR of Total Asset	2007- 2011	23.36%	90.56%	33.72%	34.23%	36.73%	38.46%

⁵ SANY INT'L stands for "Sany Heavy Equipment International Holdings Company Limited".

⁶ China Coal stands for "China Coal Energy Company Limited".

⁷ Tiandi stands for "Tiandi Science & Technology Co., Ltd."

⁸ Zhengzhou Coal stands for "Zhengzhou Coal Mining Machinery Group Company Limited".

⁹ CAGR means "Compound Annual Growth Rate".

Financials (RMB in mm)	Year	GMM	ERA Mining ⁵	SANY INT'L ⁵	China Coal ⁶	Tiandi ⁷	Zhengzhou Coal ⁸
Asset ¹⁰ Turnover	2007	752	1,119	N/A	355	438	375
	2008	607	323	980	406	494	361
	2009	523	419	1,034	436	464	332
	2010	700	688	789	470	477	519
	2011	712	1,043	711	500	419	498
EBIT ¹¹	2007	142	11	N/A	300	576	372
	2008	188	92	245	342	1,016	445
	2009	296	177	524	453	1,215	676
	2010	428	215	726	553	1,445	979
	2011	444	129	884	655	1,973	1,204
EBIT Margin	2007	16.50%	8.16%	N/A	8.51%	17.52%	15.78%
	2008	14.66%	8.27%	21.38%	7.38%	20.42%	11.96%
	2009	19.45%	12.62%	27.58%	7.61%	18.41%	13.10%
	2010	22.03%	12.14%	27.04%	7.82%	18.13%	17.39%
	2011	21.17%	6.59%	23.39%	8.05%	16.43%	18.46%
CAGR of EBIT Margin	2007- 2011	6.42%	-5.20%	3.04%	-1.37%	-1.60%	4.00%

¹⁰ Asset turnover=360*Total asset/revenue.

¹¹ EBIT=Gross profit - SG & A expenses.

Financials (RMB in mm)	Year	GMM	ERA Mining ⁵	SANY INT'L ⁵	China Coal ⁶	Tiandi ⁷	Zhengzhou Coal ⁸
EBIT/ Total Asset	2007	7.90%	2.62%	N/A	8.63%	14.41%	15.15%
	2008	8.69%	9.22%	7.85%	6.54%	14.87%	11.92%
	2009	13.40%	10.84%	9.60%	6.29%	14.28%	14.22%
	2010	11.34%	6.35%	12.33%	5.99%	13.68%	12.06%
	2011	10.71%	2.27%	11.84%	5.80%	14.13%	13.34%
# of Employees	2007	3,329	N/A	N/A	8,883	4,412	N/A
	2008	3,640	N/A	2,431	7,994	6,344	N/A
	2009	3,397	2,409	3,045	9,454	8,767	N/A
	2010	3,675	3,165	3,625	9,522	9,718	3,533
	2011	3,718	3,836	4,958	9,341	10,613	3,344
CAGR of # of Employees	2007- 2011	2.80%	N/A	26.82%	1.26%	24.54%	N/A
EBIT per Person	2007	42,514	N/A	N/A	33,769	130,539	N/A
	2008	51,527	N/A	100,880	42,762	160,214	N/A
	2009	87,006	73,570	172,194	47,891	138,604	N/A
	2010	116,452	67,877	200,171	58,071	148,658	277,158
	2011	119,438	33,543	178,368	70,076	185,890	360,179
CAGR ¹² of EBIT per Person	2007- 2011	29.47%	N/A	20.93%	13.14%	9.24%	N/A

12 Financials at SANY INT'L's for 2007 is not available, therefore, CAGR calculation for SANY starts from 2008.

APPENDIX C
INTERVIEWED COMPANIES

Table 21 Basic Information of the Interviewed Companies

Firm ¹³	Industry	Investment size (US\$ mm)	Equity percentage	Holding period (years)	Exit method	Investment rational
TVM	Media	25	100%	2	NA ¹⁴	Consolidate fast-growing cable TV ad market.
LNМ	New material	1.55	10%	4	NA	Develop new material for numerous industrial applications.
TOG	Oil/gas	400	100%	3	NA	Catch China growth opportunities.
TCP	Cell phone maker	60	100%	5	NA	Asia growth opportunities.
BHCS	Healthcare service	5	10%	4	NA	China growth opportunities, leverage global network resources.
BHCP	Diagnosis product	5	15%	4	NA	Fast-growing sector and technology.
BCT	Refrigeration	4	15%	3	NA	Fast-growing sector, bring needed technology.
LQP	Auto parts	4.8	10%	5	IPO ¹⁵	New growth sector in China.
LYJG	Chemical	2.6	30%	5	IPO	Import substitute opportunities.

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¹³ Names of the companies are pseudonyms to protect the confidentiality of the interviewees.

¹⁴ Investment is still in a holding period.

¹⁵ Initial Public Offering (IPO), which includes listings at the newly created Third Board.

Firm ¹³	Industry	Investment size (US\$ mm)	Equity percentage	Holding period (years)	Exit method	Investment rationale
LTS	Cell phone parts	5.7	7%	3	IPO	Breakthrough technology, serving fast-moving consumer market.
LBYQ	Electric transformer	1.9	5%	4	IPO	Growth opportunity.
LTBF	Chemical	8.5	10%	3	RTO ¹⁶	Global expansion of the Chinese company.
NXF	Consumer products	55	60%	5	T ¹⁷	China growth.
NQP	Auto	52	30%	3	T	Global auto parts making inroad to China, seeking growth.
YTS	Travel services	9.23	12%	4	NA	Fast-growing consumer services.
YRS	Subway system design	15.38	5%	2	NA	Fast-growing subway system design.
NDS	TMT	20	5%	1	NA	High-tech company, waiting for explosive growth opportunities.
THW	Hardware	105	70%	4	NA	Roll-up strategy to consolidate hardware sourcing.

¹⁶ Reverse Tender Offer (RTO), the company sold itself to a public company.

¹⁷ Trade Sale—the company is sold to another fund or corporate buyer.

Table 22 Capabilities and Financial Performance

Firm	Control method	Value-added activities provided by investors ¹⁸ .	Typical quote	Lessons learned	Estimated investment return (IRR)
TVM	Full	Financial/accounting legal compliance, corporate governance.	Had we known the background of the CEO beforehand, we would not have invested in the company (fund partner).	Due diligence was not properly done. Investor was rushed into deal.	Negative
LNM	Veto	Sales/marketing Industry network product and process expertise.	Had wrong co-investor. We should not invest in a company in which we could not influence the decision-making process (fund partner).	Should not co-invest with a SOE fund that does not share same vision and values.	Negative
TOG	Full	Product development, quality assurance, finance/accounting.	CEO is a big company guy, talks too much but lacks hands-on leadership (operating partner).	Ignored product quality issue during due diligence. Overpaid for the company which leaves no cushion for market downturn.	15%
TCP	Full	None	The company is a revolving door. Investor is not involved in the operation. There is no effective communication between investor and the management team (operation partner).	TMT changed too many times since investment. CEO, CFO, and other key positions changed multiple times. As a result, the company is struggling in the market.	Negative

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¹⁸ This would include investors, co-investors, and outside experts brought in by investors.

Firm	Control method	Value-added activities provided by investors ¹⁸ .	Typical quote	Lessons learned	Estimated investment return (IRR)
BHCS	Veto	Sales/marketing, accounting and legal compliance.	The company could not reach out to overseas customers due to communication issues (fund partner).	For smaller companies, investors must pitch in and help get things right.	22%
BHCP	Veto	Technology transfer.	Our co-investor would not come to invest in China if we are not in the deal (fund partner).	Managing a small startup requires investors be prepared to provide a lot of value-added services.	25%
BCT	Veto	Sales/marketing, technology/product design, accounting/finance.	Our co-investor sent in engineers to work side by side at the company to get the product design right (fund partner).	With a fast-growing market, investors have to contribute value in addition to money.	38%
LQP	Veto	Strategy consulting. Sales/marketing, accounting support, business development, hiring.	We work closely with the CEO, supporting him with whatever he needs (fund partner).	Should focus on our core industry which we could add more value.	32%
LYJG	Veto	Industry network, sales/marketing, product certification, new business development, product and process expertise.	We strongly recommend the CEO does not get into competition with its customers. Despite our advice, the company went to compete directly with its customers. As a result, it suffered a huge loss of revenue on its core products (fund partner).	Should not invest into a startup because of its technical ability only. Should hire a strong COO with business training to complement the CEO.	17%

Firm	Control method	Value-added activities provided by investors ¹⁸ .	Typical quote	Lessons learned	Estimated investment return (IRR)
LTS	Veto	Industry network, technology development, sales/marketing, improve core competency, differentiate its product offering.	Founder/CEO is easy to work with. He appreciates the operational value we bring in addition to our investment. We consistently communicate on various business issues (fund partner).	Investment into a business is ultimately investing into the entrepreneur and its team.	36%
LBYQ	Veto	None	The management team is strong. They do not need help from investors. We invested in the deal because it is a club deal situation. We are returning a favor to other co-investors (fund partner).	This is a pre-IPO case. We did bring in co-investors to help the company develop new business opportunities.	34%
LTBF	Veto	Strategic consulting, global sales/marketing, expanding overseas customer base, help recruited industry experts, improve quality, cost reduction, waste re-utilization.	Top management team is a capable one. However, they do not have a global vision or network resources to develop the business. This is where we provide help (fund partner).	It is easy for companies to accept help if it is revenue enhancing. Cost-cutting initiatives are less welcome. Therefore, work on the enhancing revenue first to earn credibility. Implement cost-cutting measures to improve efficiency later.	60%

Firm	Control method	Value-added activities provided by investors ¹⁸ .	Typical quote	Lessons learned	Estimated investment return (IRR)
NXF	Full	Operational support, finance/accounting.	We were dragged into being a majority shareholder. Unexpected market changes made return below our expectation.	When investments do not perform as expected, investors should get out earlier rather than later.	13%
NQP	Partial	Sales/marketing, new channel, recruiting key operation managers, assisting the sales process by vetting the potential Chinese buyer.	We got into this deal because we like the market growth opportunity and our partner who is a global market leader in the field (fund partner).	External support from industry experts is an important resource that can be utilized.	45%
NDS	Veto	Not much value added except on company direction.	We invested into this company because we had previous success in a similar business (fund partner).	Prior investment experience helped in selection of new investment project.	23%
THW	Partial	Investor tried to put in structures that would transform business from a family business to a professionally run one.	The CEO hired by the investor is a big company guy, could not work well with a small company. Plus, his actions are always second-guessed by the minority shareholder (fund partner).	Minority position is tricky. If shareholders do not share the same vision and ethics, the company will suffer.	Negative
YRS	None	Not much value-added services required and provided.	The company does not want us to be involved in the operation. We can only provide soft consulting services (fund partner).	As a financial investor, there is only so much an investor can do unless asked by the company.	12%

Firm	Control method	Value-added activities provided by investors ¹⁸ .	Typical quote	Lessons learned	Estimated investment return (IRR)
YTS	Veto	Strategic consulting, recommend people for key positions, help on network expansion.	We can only influence the company through board-level discussion (fund partner).	Well-run businesses do not need to verify their business model. Choosing the right business is the key.	43%