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# Leveraged Buyout Activity: A Tale of Developed and Developing Economies



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## Abstract

Returns on LBOs are on average higher for developed economies. However, returns of LBOs during high economic growth periods are high for developing economies relative to developed economies. On the other hand returns in developing nations are lower when compared to the returns in developed nations in periods of negative economic growth. Developing countries are more unstable relative to developed countries during conditions of boom as well as collapse. Exit times for LBO transactions in developing economies are therefore shorter relative to developed economies in periods of high positive (negative) economic growth rate.

During periods of negative economic growth rate, LBOs in developing economies exit sooner. In periods of low or medium economic growth, LBOs in developing economies take longer to exit. Reputed firms and small firms have higher returns and exit sooner. Club deals have higher returns and exit sooner when compared with single PE firm deals. Club deals in developing economies are on average not profitable and exit sooner

**Keywords:** LBOs, Returns, Reputed, Developing Economies, Uncertainty, Business Cycle, Exit Times

**JEL Codes:** F21; F44; G3; G15; G24.

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## 1 Introduction

«Leveraged buyout» or «going private» is the process of taking the firm private. It is one of the many ways of taking a firm private, but we focus on LBOs as they are more prevalent in this era of relatively cheap debt<sup>1</sup>. Private equity can be broadly defined to

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<sup>1</sup> In the USA, many types of transactions can result in a company going private. They include: a. Another company or individual makes a tender offer to buy all or most of the company's publicly held shares; b. The company merges with or sells all or substantially all of the company's assets to another company; or The company declares a reverse stock split that reduces the number of shareholders of record. In a reverse stock split, the company typically gives shareholders a single new share in exchange for a block—10, 100, or even 1,000 shares—of the old shares. If a shareholder does not have a sufficient number of old shares to exchange for new shares, the company will usually pay the shareholder cash instead of issuing a new share, thus eliminating some smaller shareholders of record and reducing the total number of shareholders. Once the number of outstanding shareholders falls below 500 the company is considered a private company also. Source: SEC Rule 13e-3 and Section 12(g) of the Securities Exchange Act of 1934.

include leveraged buyout, growth capital, mezzanine capital<sup>2</sup> and venture capital. It is common for private equity to be the principal descriptor of LBOs. Investment firms that engage in leveraged buyout activity are known as private equity firms (PE firms), buyout firms or financial sponsors.

In a leveraged buyout transaction, PE firms buy a majority stake in the publicly trading target firm by using a large amount of debt to fund the transaction. After making a significant unrealized return or upon financial distress, PE firms exit their stake in the leveraged buyout investment. In the case of a successful investment, PE firms typically want a return of several multiples on their initial investment and are therefore not quick to exit a successful investment. They on the other hand are quicker to exit a failed investment or one that has little chance for success.

When PE firms make an investment, they do not intend to control the target firm's daily operations. Arzac (1992) mentions that PE firms are considered to be outside investors. They require a qualified management team to manage daily operations. The management team is also required to oversee the PE firms exit and effectively market the target firm to potential buyers or investors during exit. Hence the management team should work in line with the PE firms' interests. Liebeskind, Wiersema and Hansen (1992) mentioned that LBOs increase the proportion held by managers increasing the correlation of their rewards with the value of the firm and aligning their interests more closely with those of non-managerial stock-holders.

In our study, PE firms exit through either one of the four methods i.e., public offering, strategic sale, secondary LBO and bankruptcy. This classification is based on Kaplan and Stromberg (2009). In reality, there are many other methods of exiting an LBO investment but we do not have access in the CapitalIQ data set to finely analyze other types of exits. Some other types of exits as mentioned in «La Lande, Gibson, Dunn and Crutcher LLP (2011)» are partial exits through dividends issue and recapitalization, tag along rights and redemption rights.

We explain and compare the returns on leveraged buyouts (LBOs) in developed economies with those of developing economies (including newly industrialized economies). The data consists of leveraged buyout transactions from 1980-April 2012. This covers both periods of recession and economic boom.

In general most studies have looked at leveraged buyouts in developed economies. Very few studies have looked at LBOs in developing markets. Our study is one of the few to do so. Stromberg (2008) covers leveraged buyout activity around the globe. He compares LBOs exit methods and holding periods from 1970-2007. He finds that LBOs take longer times to exit than what has been documented in previous studies.

Stromberg (2008) also found that when there is an experienced PE firm involved in the transactions, LBOs exit sooner, are more likely to go public and are less likely to end up in a bankruptcy. Leeds and Sunderland (2003) find that on average returns of lever-

<sup>2</sup> In LBOs, mezzanine capital is used in conjunction with other securities to fund the purchase of target firm. Mezzanine capital will be used to fill a financing gap between less expensive forms of financing and equity. Financial sponsors will seek to use mezzanine capital in a LBO in order to reduce the amount of the capital invested by the PE firm; because mezzanine lenders typically have a lower target cost of capital than the PE investor, using mezzanine capital can potentially enhance the PE firm's investment returns.

aged buyout activity in developing economies are lower when compared with developed economies, and they do not compensate for the high risk involved in these transactions.

We analyze leveraged buyout transactions in different growth phases of the economy and compare developed and developing economies. Returns to leveraged buyouts (LBOs) are, on average found to be higher for targets that are from developed nations. However in periods of high economic growth, returns of leveraged buyouts in developing economies are higher than those in developed economies.

We specifically address the states of the economies we analyze. We divide economic growth into four different categories using GDP growth rate as the benchmark. Negative economic growth phases are periods when GDP growth rate was less than 0%. Low economic growth is when GDP growth rate was between 0% and 2%. Moderate economic growth is when GDP growth rate was between 2% and 5%. High GDP growth is when GDP growth rate was greater than 5%. We then compare how the returns and the number of days to exit of LBOs vary in these four categories of GDP benchmarks for both developed and developing countries.

We find that the returns to LBOs in developing nations are higher during the periods when the growth of the economy is high when compared to returns of LBOs in developed nations. This is because in periods of high economic growth, developing economies have a higher growth rate in general when compared to developed economies. Whereas when the growth of the economy is moderate or slow, the returns of LBOs in developing nations do not compensate for the risks inherent in investing in them. Hence during low or moderate economic growth periods, the returns of LBOs in the developed nations will be higher relative to those in developing countries.

We also examine how the number of days to exit LBOs is affected by economic conditions and other factors. We find that PE firms invested in developing economies exit sooner when the economic growth rate is negative and also when the growth rate is high. This is because when the economic growth is negative, in developing economies, PE investors would like to exit sooner to avoid major losses. In phases of negative growth, the fear of being trapped in a market and not being able to exit, is paramount and overriding for PE investors. In periods of high growth in the economy, in developing economies, the PE firms take the profits sooner and exit. This is a precautionary measure by the firms to exit sooner before the market conditions change.

Koren and Tenreiro (2007) explain why GDP growth rate is so much more volatile in developing economies. They identify three possible reasons (1) developing countries specialize in fewer and more volatile industries (2) developing countries experience more frequent and severe aggregate shocks from macro economic policies and (3) developing economies macro economic fluctuations are highly correlated with stocks affecting the sectors in which they specialize<sup>3</sup>.

<sup>3</sup> Bloom (2014) shows that for a wide set of developing economies, with GNP less than \$10,000 per capita, there is a higher level of macro-uncertainty than in developed economies. This translates to an average of 50% greater volatility in GNP growth rates, 12% more stock market volatility and 35% more bond market volatility for developing economies. Developing economies also face greater levels of micro uncertainty. Uncertainty is higher in recessions than in booms. Developing economies are therefore faced with greater risks in both booms and recessions.

The average time to exit LBOs is 5.25 years. The most common route of exit is Strategic sale which is 36% of the total transactions; Secondary LBOs is 28% and Public Offering is 24% of the total exits. There was also a significant amount of bankruptcies 9%. These results are comparable with Stromberg (2008), who finds that the most common exit route, are trade sales to another corporation, accounting for 38% of all exits. The second most common exit route is secondary buyouts 24%, while public offering accounts for 13% of exits. Since high amounts of debts are involved in the transactions, about 6% of the transactions end up in financial distress according to the Stromberg (2008) study.

We investigate whether PE firm reputation, influences the returns of LBOs. Reputed PE firms have better bargaining power in terms of negotiating the initial prices of LBOs. Reputed PE firms can also get better loan terms. Since LBOs are highly leveraged, this advantage to raise funds at a lower cost can result in better realized returns. LBOs that are associated with reputable PE firms exit sooner due to the experience of the reputed PE firms.

Stromberg (2008) finds that LBOs that are sponsored by more experienced PE partnerships tend to stay in LBO ownership for a shorter period of time, are more likely to go public, and are less likely to end in bankruptcy or financial distress. We test the number of exits through different routes based on the reputation of the issuer. The data shows that there are just 6 bankruptcies when PE firms have strong reputation. Strategic Sale and Secondary LBOs are the most common exit routes if the PE firm was a reputed firm.

We next examine the effect of number of days to exit on the returns of the LBO. Lopez-de-Silanes, Phalippou and Gottschalg (2010), find that Quick flips (investments held for less than 2 years have high IRR (85%)) and investments held for more than 6 years have IRR of 8%. Our results reinforce these findings. We find that a smaller number of days to exit is associated with higher returns on LBOs. The regression results in the study finds that quick flips result in higher returns of about 7% on average.

We also extend the study of Officer, Ozbas and Sensoy (2010) to examine the effect of club deals on the returns of LBOs. They find that club deals reduce the prices paid to the target firm during the initial LBO transaction since they reduce the competitiveness during the initial process of the leveraged buyout deals. We analyze their claims in detail by comparing the returns of LBOs upon exit, club deals versus non-club deals. We found that club deals result in higher returns upon exit and exit sooner.

A club deal (or syndicated investment), in finance, refers to a LBO or other private equity investment that involves several different PE firms. In a club deal, the investor group of PE firms pools its assets together and makes the acquisition collectively. The practice has historically allowed private equity to purchase larger and more expensive targets. Also, by syndicating the equity ownership across a group of investment firms, each firm reduces its risk of investing since it is shared by many firms.

A club deal also reduces the competitiveness of the deal since many large PE firms combine to acquire a firm. This might be due to the reduction in the number of firms competing during the bidding process for a target takeover and hence less lively bidding or the effects of active collusion. This criticism that club deals reduce LBO prices has strong grounding in the auction literature, in which it is well-recognized that bidder collusion may depress sale prices (Graham and Marshall (1989); Marquez and Singh

(2009)), and in the regulatory economics literature (Cramton and Schwartz (2000); Hendricks and Porter (1992)). Existing literature stress that collusion can reduce prices even in the absence of repeat play and even if collusion does not involve all potential bidders for a target.

In our study, we analyze the effect of the number of PE firms (club deals) on the LBO returns and also the number of days to exit. From the regression results, we find that for every extra PE firm, the returns of the target firm are higher by 4% on average. We additionally find that the value of the firm is higher by \$397 million if the LBO transaction is a club deal. This shows that club deals are common when the target firm is large. We also find that club deals take 45 days less to exit for each additional number of PE firm (Table 10). Thus we see that since club deals initially depress LBO prices, the returns of these club deals at exit are higher.

We test if the size of the target firm influences the return of the leveraged buyout transaction or the amount of time taken by the firm to exit. We classify the targets as small, medium and large firms to test if the size of the target has an impact on the returns or exit patterns of the buyout. We sort the firms based on value of the LBO. The categories are Small: <\$10 million, medium: \$10-\$100 million, large: >\$100 million. Demiroglu and James (2010) and Lopez-De-Silanes, Phalippou and Gottschalg (2010), find that small investments outperform larger ones. Kaplan and Stromberg (2009) find that small firms, reputed firms and syndicated firms exit sooner.

Our results also show that smaller firms have higher returns and exit sooner than larger firms. If the size of the firm is smaller, then it is easier to exit due to more available exit options. It is easier to find buyers in case of secondary LBO or strategic sale. These results contradict the finding in Stromberg (2008), who found that smaller LBOs remain owned by the buyout firm for a longer period. The finding in Stromberg (2008) also contradicts results found in Kaplan and Stromberg (2009).

We also test if the Debt/Capital ratio of the target firm has an impact on the returns to the investment or to the exit time of the transactions. We find that higher Debt/Capital ratio results in lower returns and longer time to exit. Higher leverage means higher risk, and especially during periods when the economy is slow or doing badly, this results in lower returns and losses for LBOs.

Possibly the industry of the PE firms and that of their targets may influence the returns or the exit patterns of the LBO or PE returns. We find that buyer firms in the same industry as the target have higher returns in most cases. This is because if the target firm and the buyer firm are from the same industry, they may have more knowledge about operating procedures. This might also be due to economies of scale from operating in the combined firm.

Section II provides a comprehensive literature review. Section III is the hypotheses section. Section IV describes the data utilized in the study, its limitations and the screens that we employed. Section V gives a detailed overview of the methodology used in the study. Section VI shows the results of the various types of regression and the interpretation of the results uncovered. Section VII shows the conclusion and points the way for future work.

## 2 Literature review

There have been studies that have looked at international LBOs and analyzed various factors that influence LBO activity. Leeds and Sunderland (2003), find that returns in developing markets do not adequately compensate for high transactions risk. This is mainly due to low standards of corporate governance in terms of quality of information required for investment decisions, weakness in legal systems to enforce legal contracts and protecting all classes of investors, and the inability of domestic equity markets to offer reasonable exit prospects through public offering. Private equity investors want to differentiate investments between countries based on protection to shareholder rights, tax treatment of capital gains, and securities market development.

Kaplan and Stromberg (2009) look at PE investments around the world. They broadly classify LBO exits into strategic sale, secondary buyout, public offering and bankruptcy. They find that small firms, reputed firms and syndicated firms exit sooner. Stromberg (2008) does a comprehensive study of LBOs across the world. In addition, he looks at the characteristics of LBO exits based on size, industry and other effects such as syndication of PE firms.

Lopez-de-Silanes, Phalippou and Gottschalg (2010), find that Quick flips (investments held for less than 2 years have high IRR (85%)) and investments held for more than 6 years have IRR of 8%. They find that small investments outperform large ones. They look at the size of the PE firm in influencing the returns of the PE investment. They also find that investments in developing countries exhibit poorer performance when compared to developed countries. This may be a result of costly learning, lower leverage, poorer legal environments and limited exit routes. Lerner and Schoar (2004) also find that returns from private equity in these nations also appear to have been far lower than in the United States and Europe. Lerner and Schoar (2005) find that transactions vary with nations' legal enforcement. They find that in low enforcement and civil law nations, PE groups tend to use common stock and debt, and rely on equity and board control. LBO transactions in high enforcement countries use convertible preferred stock with covenants, and they tend to have higher valuations and returns.

Ivashina and Kovner (2011) find that bank relationships formed through repeated interactions reduce inefficiencies from information asymmetry and result in favorable loan terms for the PE firms in leveraged buyouts transactions. Demiroglu and James (2010) found that reputable private equity groups pay lower loan spreads and have longer loan maturities. Lopez-de-Silanes, Phalippou and Gottschalg (2010), and Demiroglu and James (2010) find that leverage (Debt/EBITDA) is directly related to reputation. The available evidence shows that reputed firms have the ability to raise more debt at favorable terms.

Axelson, Jenkinson, Strömberg and Weisbach (2012), find that the economy-wide cost of borrowing is the main driver of both the quantity and the composition of debt in these buyouts. Credit conditions have a strong effect on prices paid in buyouts, even after controlling for prices of equivalent public market companies. In the developing markets, the acquirers are mixed. Some are international PE firms, some are domestic PE or other investment firms, and there are also a few other firms acquiring the target companies. Kaplan and Stromberg (2009) found that LBO activity was very brisk in the period

of 2005-mid-2007 due to overly favorable terms for debt investors during this period. LBO activity decreased in late 2007 due to credit-market turmoil. Demiroglu and James (2010) found that reputable private equity groups are more active in the LBO market when credit risk spreads are low and when lending standards in the credit market are lax.

Masulis and Thomas (2009), find that club deals are not all that profitable due to agency cost that arises out of multiple PE firms sponsoring an LBO deal. In a club deal, there are additional conflicts of interest between LBO sponsors. These conflicts could result in more agency costs in terms of free riding by some sponsoring private-equity firms and disagreements among others over a target company's major policies or proposed policy changes, especially when a firm is performing poorly. However, this potential cost can be minimized by limiting the size of club deals to two or three investors, which is the norm. Another possible disadvantage of these syndicated LBO deals is that the future portfolio company's stock appears to experience more insider trading activity prior to the announcement of the transaction.

Demiroglu and James (2010) found that small investments perform better than the larger ones. Moeller, Schlingemann and Stulz (2004) also find that smaller firms perform better than larger firms in acquisitions. Crucini, Kose and Otrok (2008) find that international business cycles are mainly determined by productivity, measures of fiscal and financial policy, terms of trade and oil prices. Calderón and Fuentes (2010) find that output losses during peak-to-trough phases are larger among emerging market countries than among industrial ones. Output gains during trough-to-peak phases are larger among emerging market economies<sup>4</sup>.

La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997) find that good law enforcement has positive effects on valuation and breadth of debt and equity markets. La Porta, Lopez-de-Silanes, Shleifer and Vishny (2002) show that poor shareholder protection is penalized with lower valuations. Higher cash-flow ownership by the controlling shareholder improves valuation, especially in countries with poor investor protection. Djankov, McLiesh and Shleifer (2007) found that public credit registries, which are primarily a feature of French civil law countries, benefit private credit markets in developing countries. Few studies have examined the returns on the LBOs in both the developed and developing economies. Our paper is the first to analyze returns of LBOs and exit pattern of the LBOs in recession and boom periods for both types of economies.

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### 3 Hypotheses

Hypothesis 1: Returns of LBOs are on average higher in developed economies. However during periods of high economic growth, LBOs in developing economies have better returns when compared with developed economies. In slow or low growth phases, LBOs in developed economies have higher returns than the returns to LBOs in developing economies.

This is true because developed economies have high growth rates in terms of GDP and other economic indicators. Historical GDP (most recent 10 year span) in US is

<sup>4</sup> These findings anticipate and support the results found by Bloom (2014).



on average 2%-2.5% and highest being about 6.6% in Q3-2003. *Source: US Bureau of Economic Analysis.* In UK and Scotland, GDP growth rate (most recent 10 year span) has been around 2% with the highest GDP being a little over 4% in Q3-2003. *Source: Scottish Government Website.*

In China, GDP growth rate (most recent 10 year span) has been 9% with the highest GDP being about 12.8% in 2007. South Africa has a highest GDP growth rate of up to 6.5%. Similarly in other developing or newly industrialized economies, GDP growth rate are much higher than those of the USA and UK.

Hence investments in developing or newly industrialized economies have higher returns when compared to investments in developed economies. However, in periods of slow economic growth, like periods of recession, the developing markets are highly risky.

Hypothesis 2: Leveraged buyouts in developing economies exit sooner on average. During periods of very high economic growth, LBOs in developing economies exit sooner when compared with developed economies. But the results also show that in periods of negative economic growth, the LBOs in developing economies exit the soonest in order to minimize losses in recession.

Hypothesis 2 makes sense due to the same reasoning behind Hypothesis 1. In periods of fast economic growth, developing markets' LBOs have high returns and are associated with faster exits. In periods of recession, LBOs in developing markets exit faster than would apparently be warranted, in order to avoid major losses in the investments. In periods of moderate economic growth, LBOs in developing economies take longer time periods to exit.

Hypothesis 3: Reputed PE firms result in higher returns of the target firm and take fewer days to exit.

This hypothesis is to test and verify the results found in previous research that reputed PE firms result in higher returns.

Hypothesis 4: Smaller firms have higher returns when compared to large firms Small firms also take shorter time periods to exit when compared with larger firms.

The hypothesis holds true because if the size of the firm is smaller, then it is easier to exit due to more available options of exit.

Hypothesis 5: Club deals on average result in higher returns and exit sooner. Club deals in developing economies are not profitable but exit sooner when compared with club deals in developed economies.

Hypothesis 5 makes sense because the initial LBO prices of club deals are depressed due to higher bargaining power of the consortium of buyers. Hence it is an advantage to the PE firms, which results in higher returns at the time of exit of the LBO.

In developing economies, club deals lead to more problems than there are benefits. There could be discrepancies among the consortium of PE firms involved in the PE firms in the way they run the business and hence leads to lower returns.

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## 4 Data

LBO transaction data is collected from Capital IQ. The exit information was collected from Capital IQ separately and is matched with the initial LBO transaction based on Target company name. If exit information was not present, then a manual search was

done to find exit information from the individual LBO company websites or from a general web search.

For the preliminary regression test, to test how the value of the LBO depends on various other factors, we include 40,886 LBO and MBO transactions that took place from 1980-April 2012. Some of the LBO transactions did not have exit information either because LBO transaction did not exit yet, or the terms of the deal were not disclosed during the deal, or exit information was not recorded in CapitalIQ. Many transactions happened in the recent years (2010 onwards) and hence have not yet exited. From the available information, 15,912 transactions or 38.91% of the transactions exited the initial LBO deals.

Kofman and Sharpe (2003) explain the various popular imputation techniques for dealing with missing data. We replace missing values with average values, which is one of their suggested methods. For transactions that had exit dates and exit transaction value regression tests were done to find the dependency of the returns of the LBOs on various factors and also to find the dependence of number of days to exit on various factors. Those deals that did not have both the initial LBO transaction value and the exit transaction value or the exit date recorded in CapitalIQ were eliminated from the regression analysis.

In the paper Kaplan and Strömberg (2008), they use similar data from CapitalIQ and found that 54% of the transactions had not yet exited. Our data shows that about 62.5% of the firms do not have exit information. Our results are different since we consider data from 1980 to April 2012. The time frame of study in Kaplan and Stromberg (2008) is from 1970 to 2007.

The exit method is either through public offering, secondary LBO (which includes management buyout), bankruptcy sale, strategic sale or terms not disclosed. Since we treated LBOs and MBOs to have similar characteristics in the initial LBO screening process, they are combined to find the exit patterns. Kaplan and Stromberg (2009) also combine MBOs and LBOs to test the results.

Public offering is a process of listing the firm in the stock market so as to make the firm public again. Secondary LBOs is the process of selling LBOs to other private equity firms. Strategic sale is the process of selling the LBO firm to another strategic buyer who is not a private equity firm. Since high amounts of debt are involved, some of the firms may end up in bankruptcy or reorganization.

In our data, we find that the most common routes of exit are strategic sale, secondary LBO and public offering. Strategic sale was 36% and secondary LBO 28%, public offering 24% of the total exits, and 9% of firms went into bankruptcy. Stromberg (2008) finds that the most common exit route, for PE and MBO deals alike, is trade sales to another corporation, accounting for 38% of all exits. The second most common exit route is secondary buyouts (24%). Public offering accounts for 13% of exits. Since high amounts of debts involved in the transactions, about 6% of the transactions end up in financial distress.

The average exit time of all the LBOs is 5.25 years. Strömberg (2008) found that LBOs in the 1980s take 6-7 years to exit and LBOs in the 1990s take 9 years to exit. Kaplan (1991) found the median leveraged-buyout target remained in private ownership for 6.82 years. For the regression process, we create various dummy variables to analyze how these various variables affect our dependent variables: «Returns» and «Days to exit». Detailed explanation of how these variables are created is provided in the methodology section.

**Table 1:** Table shows number of LBO and MBO transactions in each decade (from the data initially collected from CapitalIQ).

Time period	Number of LBO/MBO transactions	Percentage of LBO and MBO transactions (%)
1980-1989	554	1.3554
1990-1999	3,713	9.0810
2000-2009	28,351	69.3416
2010-2012	8,268	20.2220
Total	40,886	

**Table 2:** Table shows values of LBO and MBO transactions with transaction value information available in CapitalIQ

Time period	Number of LBO/MBO transactions	Percentage of LBO and MBO transactions (%)	Total Transaction value (Millions of \$)
1980-1989	275	1.73	131,007.79
1990-1999	1,870	11.75	462,616.39
2000-2009	11,138	70.00	3,936,758.49
2010-2012	2,629	16.52	472,706.35
Total	15,912		5,003,089.02

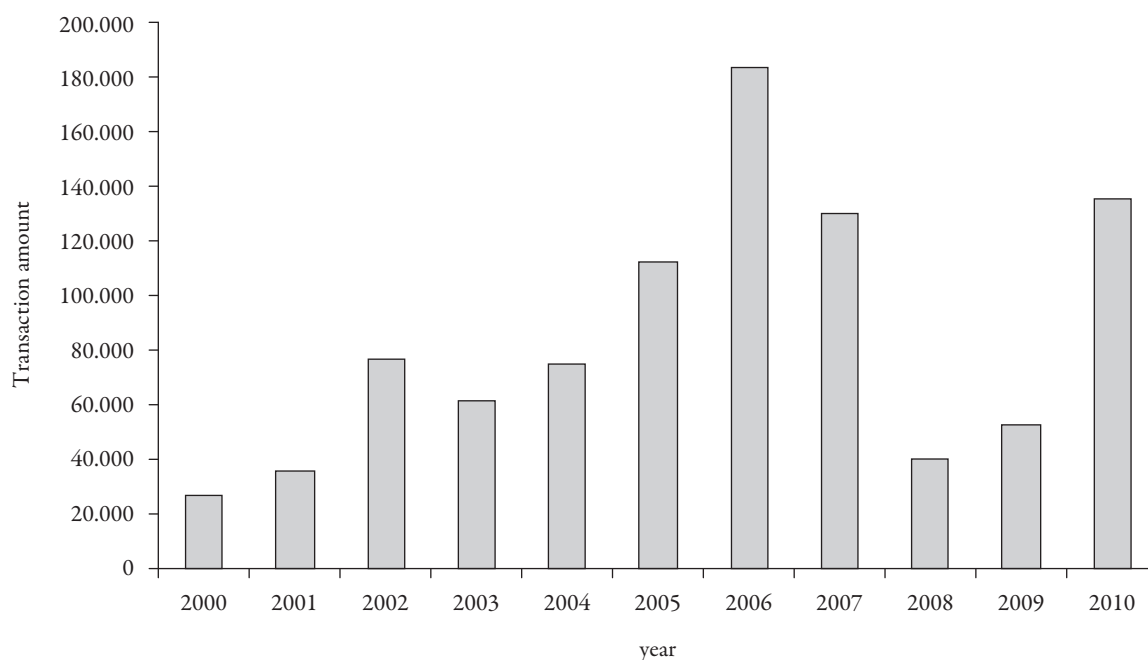
**Figure 1:** Figure shows transaction amounts of LBOs from 2000-2010.

Table 1 shows that, most of the LBO transactions happened in the 2000s. From the above capitalIQ data, we find that 1.4% of the transactions were in the 1980s, 9% of the LBOs are in the 1990s, 69% of the transactions were from 2000s and 20% of the transactions were in the 2010-2012 time slot.

In Table 2, using the available LBO deals that had transaction value recorded in CapitalIQ, we sort the deals according to the decade in which they occurred. In 1980s the total value of deals was \$131 billion. In 1990s aggregate total value of LBO deals was \$463 billion. For the years 2000-2009, cumulative transaction value was \$3.94 trillion. For

**Table 3:** Number of LBO/MBO transactions and total value of transactions in developed economies

Time period	Number of LBO/ MBO transactions	Percentage of total number of LBO/ MBO transactions (%)	Total Transaction value (Millions of \$)
1980-1989	265	1.87	130,061.49
1990-1999	1,818	12.84	457,767.79
2000-2009	10,009	70.67	3,860,883.79
2010-2012	2071	14.62	445,419.65
Total	14,163		4,894,132.72

**Table 4:** Number of LBO and MBO transactions and total value of transactions in developing economies

Time period	Number of LBO/ MBO transactions	Percentage of total number of LBO/MBO transactions (%)	Total Transaction value (Millions of \$)
1980-1989	0	0.00	0.00
1990-1999	52	2.97	4,848.60
2000-2009	1,129	64.55	75,874.70
2010-2012	558	31.91	27,286.70
Total	1,739		108,010.00

2010-2012 the cumulative transaction value was \$473 billion. Details for years 2011 and 2012 are not reported in Figure 1 but are available from the authors upon request.

Table 3 shows the number and value of transactions of developed economies sorted according to the decade in which the LBO transaction took place. Number of LBO transactions and total transaction value of LBO transactions are higher from year 2000. 10,009 transactions took place between 2000 and 2009 with a total transaction value of \$3.86 trillion. CapitalIQ had 265 transactions recorded in the time period 1980 to 1989.

Among the firms that had transaction amount information (15,912 observations), about 1,749 (11%) of target firms involved in the LBO or MBO were from developing nations and newly industrialized nations. Table 4 shows the number and value of transactions in developing economies sorted according to the decade in which the LBO transaction took place. The number of transactions in developing economies during the 1980 to 1989 time period is zero. Kaplan and Stromberg (2009) found the same in their data (Table 1). This is probably due to missing transactions in CapitalIQ. The number of LBO transactions and total transaction value of LBO transactions are higher from year 2000.

The number of LBO deals increased significantly from 2010 – 2012. This shows that after the recession in 2008 there were more investors in the developing markets since they expected a huge increase in returns from those investments. Total transaction value of all the LBO and MBO transactions in developing countries are \$108.010 billion. Total transaction value of developed economies deals is \$4.894,133 trillion (Table 3).

Among the 14,163 LBO and MBO deals in developed countries, only 101 were done by a buyer from a developing country. Out of the 1,739 LBO and MBO deals in developing countries, 318 of them were done by a PE firm from a developing country. Many of the LBO/MBO transactions in developing countries were carried out by PE firms from developed countries. 56 LBO/MBO transactions in developing countries were from reputed PE firms in developed countries.

In Table 5, we examine the number and percentage of LBO transactions according to type of exit. Only transactions that had exit information were considered. The average

**Table 5:** Sorting the LBO transactions according to the type of exit

Type of Exit	Developed and Developing	Percentage	Developing	Percentage of Total Exits
Public Offering	1,432	24.50	50	14.79
Secondary LBO	1,371	23.45	14	4.14
Management buyout	264	4.51	11	3.25
Strategic Sale	2,096	35.85	148	43.79
Bankruptcy Sale	521	8.91	15	4.44
Total	5,846		338	

**Table 6:** Sorting the LBO transactions according to the time period of exit

Time of Exit	Number of LBOs exited	Percentage
1980-1989	12	0.20
1990-1999	412	7.05
2000-2009	3,784	64.73
2010-2012	1,638	28.02
Total	5,846	

exit time period of all the transactions is 5.25 years. The most common route of exit is Strategic Sale. Strategic sale was 36% of the total transactions. Secondary buyout was 28% (SLBO + MLBO) and public offering was 24% of the total exits. There was also a significant amount of bankruptcies (9%). We examine the exit patterns in developing economies. We find that common routes, for all exits, are *a*) strategic sale –44%, *b*) public offering –15%, *c*) secondary buyout and management buyout –7.34% and *d*) bankruptcy –4.44%.

Comparing Table 1 and Table 6, we observe that the percentage of LBOs in Table 1 and the percentages of exits in each decade are nearly same. About 1.35% of the LBOs took place in the decade, 1980-1989, (Table 1) and about 0.2% of the LBOs exited during this period (Table 6). In the decade, 1990-1999, 9.08% of total LBOs occurred. Exits during the 1990-1999 decade were 7.05%. In the 2000-2009 decade, 69.3% LBOs took place and 64.73% of the total exited LBOs, exited during this period.

In the time period 2010-2012, 20.22% of LBO transactions took place and 28.02% of total exits were during this period. Hence as mentioned in Greene (2011), if the data is unavailable and it does not affect efficiency, we can ignore the missing data on exits. The data available on exits is almost the same percentage as the percentage of LBOs in each period and hence the exit data is a true representation of the entire sample.

In order to measure returns on club deals a dummy variable is created («Club deals»). The transactions that have more than one PE firms are given a value of «one» and if the LBO transaction has only one PE firm involved in the transaction, then a value of «zero» is given to the transaction.

From the data we see that 24.2% of the LBO transactions are club deals and the rest are non-club deals (1,417 of the total 5,846 transactions). Among the 1,417 transactions that are club deals, 438 of the club deals have at-least one reputed PE firm which is about 30% of the club deals. Among the 1,417 club deals, 1,392 transactions were from developed countries and the remaining 25 transactions are from developing countries. This shows that club deals are not so common in developing countries.

The average transactions size of club deals in developed markets is \$633.44 million. The average size of all firms in developed countries is \$392.08 million. In the developing

**Table 7:** Average time to exit the transactions based on their initial transaction time period (both developed and developing economies)

Years	Number of transactions	Average time to exit (days)	Number of transactions (developed)	Average time to exit in days (developed)	Number of transactions in developing	Average time to exit in days (developing)
1980-1989	198	4,880	198	4,880	–	–
1990-1999	1,805	2,740	1,767	3,739	38	2,781
2000-2009	3,742	1,406	3,486	1,421	256	1,195
2010-2012	101	257	57	288	44	217
Total	5,846	1915	5,508	1,957	338	1,241

markets, the average size of club deals is \$227.68 million. The average size of all firms in developing countries is \$82.72 million. This shows that club deals are very large compared to all other deals, regardless of country type. However average club deals in developing economies are much greater in terms of multiples of average firm size.

Table 7 sorts the number of transactions and average time to exit the LBO based on if the target firm is from a developed economy or from a developing economy. Sorting is also done according to the time period in which the LBOs exit.

LBO transactions in 1980s took longer time to exit when compared to LBOs in 1990s and the 2000s. In the 1980s average LBO deals took 4,880 days or about 13.3 years to exit. However, in the 1990s time period, average LBO deals took 2,740 days or 7.5 years to exit. The reason for shorter exit time periods in 2000s (1,406 days in 2000-2009 and 257 days in 2010-2012) is because the data sample includes transactions only until 2012. Some of the transactions that took place after the year 2000 may still not have exited before our data collection date endpoint.

LBOs in developing economies exit sooner when compared to LBOs in developed economies. In the decade of 1990-1999, average LBO deals in developed economies took about 3,739 days (10.24 years) and average LBO deals in developing economies took 2,781 days (7.62 years) to exit. Even in years 2000 and later, LBOs in developing economies exit sooner than LBOs in developed economies on average. This is because LBO transactions in developing economies during high economic growth periods have high returns when compared to developed economies. Hence PE firms want to exit sooner and lock in the profits or due to the fact that LBOs transactions in developing economies involve smaller firms and hence exit sooner<sup>5</sup>.

## 5 Methodology

In order to accept or reject the following five hypotheses, we conduct simple OLS regressions using «Returns» or «Days to exit» as the dependent variables. Equation (1)

<sup>5</sup> Bloom (2014) shows that there are higher levels of uncertainty and risks, both macro and micro risks in developing markets. There is also greater price dispersion in their stock markets. The higher returns on LBOs are therefore associated with much greater uncertainty and risks. Hence once the higher returns are recognized there is an extra incentive to lock those returns in by exiting quickly.

is the initial regression equation which considered all the observations (with or without exit information). For equations (2) and (3) we consider only the observations that have exited the initial LBO transaction.

Equation (1) uses «Value» of the LBO as the dependent variables and analyzes how the value of the LBO is influenced by various factors. In equation (2), the dependent variable is annualized return of the LBO. We critically evaluate how the various regressors influence returns of the LBOs. Equation (3) examines how various explanatory factors influence the time period to exit the LBO.

Regression equations:

1) Value of transaction (USD MM) – Developing + Reputed + Same Country + Same Industry + Number of PE firms + GDP + GDP benchmark levels at the time of initial LBO + Target Debt/Capital ratio,

2) Return – Days to exit + Quick flips + Reputed + Developing + Same Country + Same Industry + Number of PE firms + Small firm + Type of exit + GDP + GDP at exit + GDP at the time of initial LBO between 2% to 5% + GDP benchmarks at the time of initial LBO + GDP benchmarks at the time of exit between + Developing \* GDP benchmarks at the time of initial LBO + Developing \* GDP benchmarks at the time of exit + Govt. effectiveness + Rule Law + # of procedures + Target Debt/Capital Ratio,

3) Days to exit – Return + Quick flips + Reputed + Developing + Same Country + Same Industry + Number of PE firms + Small firm + Type of exit + GDP + GDP at exit + GDP at the time of initial LBO between 2% to 5% + GDP benchmarks at the time of initial LBO + GDP benchmarks at the time of exit between + Developing \* GDP benchmarks at the time of initial LBO + Developing \* GDP benchmarks at the time of exit + Govt. effectiveness + Rule Law + # of procedures + Target Debt/Capital Ratio.

#### List of Variables and Definitions

Variables	Definition of Variables
Return	Percentage annualized return of the LBO from the initial LBO to the exit. Calculated by taking the difference between LBO exit value and LBO initial transaction value. The difference is divided by the number of days to exit and multiplied by 365 to get annualized return.
Days to exit	Time period from initial LBO to the time of exit through any of the exit methods mentioned.
Quick flips	Dummy variable to show if the exit transaction is a quick flip. In other words, quick flips take less than 2 years to exit
Developing	Dummy variable of target belongs to developing country or developed country (a value of 1 is assigned to developing economies and 0 is assigned to developed economies).
Reputed	Dummy variable to indicate good reputation of PE firms.
Same country	Dummy variable to indicate if the buyer and target firm belong to the same country.
Target Industry	Dummy variables for various industries of target firms
Same Industry	Dummy variable to indicate if the target and the buyer belong to the same industry
Number of PE Firms	Total number of buyers (PE firms) involved in the LBO transactions (Club deals).
Small	Dummy variable to indicate if the firm is a small firm with a value of less than \$10 million.
GDP	GDP growth rate at the time of initial LBO transaction

GDP at exit	GDP growth rate at the time of exit of the LBO.
GDP at the time of initial LBO below 0%	Dummy variable to indicate if GDP growth rate is below 0% during initial LBO transaction.
GDP at the time of initial LBO between 0%-2%	Dummy variable to indicate if GDP growth rate is above 0% during initial LBO transaction.
GDP at the time of initial LBO between 2%-5%	Dummy variable to indicate if GDP growth rate is above 2% but below 5% during initial LBO transaction.
GDP at the time of initial LBO above 5%	Dummy variable to indicate if GDP growth rate is above 5% during initial LBO transaction.
GDP at the time of exit below 0%	Dummy variable to indicate if GDP growth rate at the time of exit of the LBO was below 0%.
GDP at the time of exit between 0% and 2%	Dummy variable to indicate if GDP growth rate at the time of exit of the LBO was between 0% and 2%.
GDP at the time of exit between 2% and 5%	Dummy variable to indicate if GDP growth rate at the time of exit of the LBO was between 2% and 5%.
GDP at the time of exit above 5%	Dummy variable to indicate if GDP growth rate at the time of exit of the LBO was above 5%
Developing * GDP < 0%	Interaction variable between the Developing and if GDP Growth rate during initial LBO is below 0%.
Developing * GDP between 0% and 2%	Interaction variable between the Developing and if GDP Growth rate during initial LBO is between 0% and 2%.
Developing * GDP between 2% and 5%	Interaction variable between Developing and GDP growth rate during initial LBO is between 2% and 5%.
Developing * GDP above 5%	Interaction variable between Developing and if GDP Growth rate during initial LBO is above 5%.
Developing * GDP at exit below 0%	Interaction variable between the dummy variable Developing and if GDP at exit is below 0%
Developing * GDP between 0 and 2%	Interaction variable between the dummy variable Developing and if GDP at exit is between 0% and 2%
Developing * GDP at exit between 2% and 5%	Interaction variable between the dummy variable Developing and if GDP at exit is between 2% and 5%
Developing * GDP at exit above 5%	Interaction variable between the dummy variable Developing and if GDP at exit is above 5%
Debt/Capital ratio	Debt/Capital ratio of the target firm
Type of exit	Dummy variable to indicate type of exit. Public offering, Secondary LBO, MBO, Strategic sale or Bankruptcy
Govt	Government effectiveness.
Law	Rule of law
Numb of proced	# of procedures needed to set-up new business in the country
Club deals * developing	Club deal in developing economies

We divide LBO activity into two categories based on the country of origin of the target. We classify and compare leveraged buyout activity as LBOs in developed countries and LBOs in developing countries. The classification of whether the country belonged to a developed country or a developing country was done based on International Monetary Fund's World economic outlook report, April 2012. There were 1,900 transactions from developing countries. The remaining 15,000 transactions were from developed countries. This clearly shows that the LBO's are mainly in developed economies. Variable «Developing» is a dummy variable which takes a value one if the target firm is from a developing country and takes a value zero if the target firm is from a developed economy.

To measure reputation, we use top 50 PE firms from «Private Equity International 300 (PEI 300, May 2012)». PE firms are ranked based on their past 5 years (2006-2011) fund-raising in millions of dollars. It also provides us with the PE firms ranking change from previous year. Only one PE firm was a new entry to the top 50 ranking spot as compared to the previous year ranking<sup>6</sup>. We consider this report to be close enough

<sup>6</sup> This assures us that the rankings are stable over time and not subject to wild fluctuations.



since most of the transactions that were collected from CapitalIQ were after the year 2000 and exited in recent years. To measure reputation, a dummy variable «Reputed» is created. It takes a value «one» if one at least one of the PE firms involved in the LBO transaction belongs to the top 50 PE firms and is given a value «zero» otherwise.

The dummy variable «Quick flips» refers to investments held for less than 2 years. It is a dummy variable which takes a value «one» if the firm exits within 2 years (730 days) of the initial LBO and takes a value «zero» if the LBO takes longer than 2 years to exit. We test the returns of the LBOs when the country of the PE firm and the target firm are same. Since returns of reputed firms are expected to be higher, the returns of LBOs transactions that have both target and buyer from the same country will have lower returns. This is because the target firm and reputed PE firm are not necessarily from the same country.

The variable, «Target industry», is the Industry Classification Benchmark launched by DOW Jones and FTSE in 2005. It is used to segregate markets into sectors within the macro-economy. Dummy variable is created if the target firm and the PE firm are from the same industry. A value of «one» is assigned if the target firm and at least the PE firm are from the same industry.

Following the methodology of Officer, Ozbas and Sensoy (2010), we include a variable to indicate if the buyer is a syndicate of PE firms (club deals). This is to test if a higher number of PE firms, has an influence on increasing the returns. We also test the influence of number of PE firms on the number of days to exit for the LBO. The variable «# of PE firms» shows how many PE firms are involved in the LBO transaction. Club deals generally depress the initial LBO prices and hence result in higher returns. They also tend to exit sooner due to the experience of all the buyers involved.

We also include variables to test if the size of the target firm influences the return of the leveraged buyout transaction or the amount of time taken by the firm to exit. The firms are divided based on the value of the LBO. Small: <\$10 million, medium: \$10-\$100 million, large: >\$100 million is the classification used. To test other effects related to club deals, we use various interaction variables with club deals variable.

To test if club deals involving at-least one reputed PE firm has a positive effect on the returns or how long it takes to exit, we use the interaction variable «Club deals \* Reputation». Effect of club deals on size of the target firm is tested by using the interaction variable «Club deals \* Size». Results of club deals in developing economies can be tested by using the interaction variable «Club deals \* Developing».

The variables GDP and GDP at exit can help us test if GDP growth rate at the time of initial LBO and GDP growth rate at the time of exit has an influence on the returns or the days taken to exit the LBO. We choose different levels of GDP growth rate as benchmarks of economic growth and look at how returns vary in the different benchmark levels chosen. We compare how the dependent variables «Returns» and also «Days to exit» depend on these four categories and analyze how these two dependent variables vary for developed and developing countries. These benchmarks permit us to compare the transactions that took place in times when *a*) the economy was performing badly (GDP growth rate less than 0%), *b*) there was slow/moderate growth (GDP growth rate between 0% and 2%) *c*) fast growth (GDP growth rate greater than 2% and less than 5% and *d*) boom (GDP growth rate greater than 5%).

One of our testable hypotheses essentially asserts that the returns in developing economies are different from those of developed economies. We create and include interaction regressors between the variable «Developing» with each of the four variables «GDP below 0%», «GDP at exit below 0%», «GDP at exit between 2% and 5%» and «GDP at exit between 2% and 5%». This creates four different variables that permit us to test if returns are lower or higher for developing markets during periods of economic boom or recession. We can also test if time period to exit is higher or lower in the different benchmark levels of economic growth in developing markets. These variables help us to verify Hypothesis 1 and Hypothesis 2.

We also include interaction variables of «Developing» with each of the variables «GDP <0%», «GDP 0%-2%», «GDP 2-5%» and GDP >5%». This permits us to test how LBOs in developing countries perform in different levels of GDP growth rates that were prevalent at the time of initial LBO. Assaad, Celaya, Cruikshank, and Foran (2011) show that investing in emerging markets yield high growth since the GDP growth rate in emerging markets is greater than the world average. Jain and Manna (2009) look at venture capital and PE investments in India. They look at the merits and demerits of investing in India which is expecting a growth rate of 9%.

The variable «Type of exit» includes the different types of exit routes of the LBO transaction. We use as the exit routes, secondary LBO, strategic sale, public offering and bankruptcy. We exclude the observations that had «Terms Not Disclosed» for the exit method from the regression since these observations do not have transaction value for the interpretation of results.

When we compare the Target Debt/Capital ratio in developed and developing economies, we find that: average Debt/Capital ratio in developed economies is 69.21%. In developing economies, the average Debt/Capital ratio is 37.88%. The reason for a higher Debt/Capital ratio in case of developed economies is that interest rates in developed economies are low as compared to those in developing economies. PE firms in developed economies therefore have greater capacity to pay off high levels of debt. Credit ratings of firms in developed economies are higher compared to those firms in developing countries on average. Hence PE firms from developed economies can obtain higher debt more readily and on easier terms. A higher Debt/Capital ratio results in lower returns and the LBO takes longer periods to exit due to the high risk involved in such transactions.

Finally we include three variables to test the effect of regulation, law enforcement and ease of setting up business on the returns and days-to-exit the LBO. Better law enforcement and corporate governance in target country results in higher returns. La Porta, Lopez-de-Silanes, Shleifer, Vishny (2002) and Leeds and Sunderland (2003) find developing countries do not have effective corporate governance, legal systems to enforce legal contracts or government effectiveness and hence result in low returns on the transactions.

Government effectiveness index, ranges from -2.5 to 2.5 based on a rating scheme by Kaufman, Kraay and Mastruzzi (2003). They combine into a single grouping responses on the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies. The main focus of this index is

on «inputs» required for the government to be able to produce and implement good policies and deliver public goods.

Law-rule of law, ranges from  $-2.5$  to  $2.5$ . This index was created by Kaufman, Kraay and Mastruzzi (2003) and measures the extent to which agents are reassured and do abide by the rules of society. Perceptions of the incidence of crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts comprise elements of the index. Together, these indicators measure the success of a society in developing an environment in which fair and predictable rules form the basis for economic and social interactions, and importantly, the extent to which property rights are protected.

«Numb of procedures» is defined as the number of procedures required to start up a firm. It ranges from 2-21. The low number on the scale 2 reflects the relative ease of starting a firm (very easy), and 21 reflects the relative difficulty in starting a firm (very difficult). This helps us test if it is easy to exit the LBO and start over as a new firm. Djankov, La Porta, Lopez-De-Silanes, Shleifer (2002).

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## 6 Results

The initial regression results (regression of equation 1) show how the value of the firm depends on various other variables are provided in the Table 8 below. For this regression we use all the observations that have initial LBO transaction value.

Table 8 has three parts to the table, which are regressions (a), (b) and (c). Regressions (a) and (b) include a constant term in the regression specification. In regression (c), we exclude the constant term. In regression (a), we exclude the dummy variable when GDP is less than 0% and in regression (b), we exclude the dummy variable when GDP is between 0% and 2%.

The regression results above show that the variable «Reputed» has a positive coefficient. This means that if the PE firm is reputed, then the value of the deal is higher by \$400-\$445 million, in all three regression results in Table 8. This shows that reputed PE firms take up larger LBOs.

From the coefficient of variable «Developing», we observe that if the target firm is from a developing country, then the value of the LBO is smaller by \$204 million in regressions (a) and (b) and is smaller by \$246 million in regression (c). This means that for developing firms average LBO value is smaller in general. If the PE firm and the target firm are from the same industry, then the value of the LBO deals are higher. This is because LBOs between firms in the same industry tend to perform better due to more knowledge in the field and economies of scale in the combined business.

If the number of PE firms is higher, then the value of the deal is higher by \$398 million as shown by coefficient «# of PE firms» in regressions (a) and (b). In regression (c), the coefficient «# of PE firms» is higher by \$305 million. This is in line with the finding that club deals (syndicate of PE firms) are involved in larger LBOs since they can get better terms on the loan due to reputation and capacity to borrow more funds due to their size, financial clout and partnerships in the deals.

**Table 8:** Initial regression: Dependent Variable: Value of the LBO (in \$(millions))

Variables	(a)		(b)		c)	
	Coeff	p-val	Coeff	p-val	Coeff	p-val
Constant	-1720.77	0.0000	-1327.135	0.0000	-	-
Reputed	445.35	0.0000	445.35	0.0000	400.86	0.0000
Developing	-204.06	0.0749	-204.06	0.0749	-246.39	0.0328
Same Country	-14.32	0.7941	-14.32	0.7941	-263.96	0.0000
Same Industry	72.66	0.3171	72.66	0.3171	-31.06	0.6694
# of PE firms	397.52	0.0000	397.52	0.0000	305.12	0.0000
GDP	78.8	0.0001	78.8	0.0001	143.45	0.0000
GDP less 0%			-393.63	0.0006	-913.65	0.0000
GDP 0% to 2%	393.64	0.0006				
GDP 2% – 5%	601.52	0.0000	601.52	0.0000	102.19	0.1266
GDP above 5%	898.36	0.0001	898.36	0.0001	567.68	0.0003
Target Debt/ Capital Ratio	17.12	0.0000	17.12	0.0000	7.86	0.0000
R-squared	0.07088		0.07088		0.05602	

*Note:* Regression (a) includes the variable GDP 0% – 2% but excludes the variable GDP less than 0%. Regressions (b) and (c) include the variable GDP less than 0%. Regression (c) is different from (b) in that (c) does not use the constant term for regression.

From the coefficients GDP, GDP between 0% and 2%, GDP between 2% and 5% and GDP above 5%, we observe that if the target GDP growth rate is less than 0%, then the value of the LBO is lower and as the GDP growth rate increases, the value of the LBO is higher. This shows that in periods when the economy is not doing well, large firms do not undertake LBO activity. During periods of recession, LBOs that take place are from smaller target firms. From the coefficient target debt/capital ratio, we find that if the Debt/Capital ratio of the target firm is high, then the value of the LBO is higher. This shows that high debt levels are used to finance the larger LBO deals.

Tables 10 and 11 include only those transactions that have exit transaction value information. Table 9 shows results of OLS regression where «Annualized return» of the LBO is the dependent variable. Annualized return is calculated as the total return on the LBO averaged per year. This provides a leveled field for comparison of various transactions that took different time periods to exit the LBO transactions.

Table 9 has five different OLS regression results. In Table 9, regression (b), we include the variable «Rule Law». In regression version (c), we use the interaction variable «Dev \* Exit GDP 0-2%». This variable is to test if the firms in developing markets during the time of moderate economic growth have higher or lower returns. In regression versions (d) and (e), we use a general variable for type of exit. We use the variable «Exits not Bankrupt» to test the returns of firms that exit successfully either through either, public offering, strategic sale or secondary LBO.

From Table 9, the interpretation of the dependency of various coefficients on the annual return of the LBO is as follows: Variable «Days to exit» has a negative coefficient, which implies that if the firm takes longer time to exit, then annualized returns are lower. This is in line with the previous finding that quick flips (LBOs that exit within 2 years) have higher returns. This is also evident from the variable «Quick flips», which has a positive coefficient; and hence we can interpret that on average quick flips result in about 7% higher returns.

Coefficient of variable «Reputed» has a positive sign implying that reputed firms have higher returns of about 2.6%-4.6% the same as results found in previous studies.

**Table 9:** Dependent variable: Annual Return of the LBO

Variables	Coefficients	(a)	(b)	(c)	(d)	(e)
Constant		27.38***	34.74***	22.3	22.246	15.818
Days to exit		-0.0036*	-0.0036*	-0.0035*	-0.004*	-0.004*
Quick flips		7.181***	7.269***	7.26***	5.735	5.666
Reputed		5.432***	5.459***	5.45***	5.44***	5.42***
Developing		-3.431	-8.453	-8.45	-10.127	-5.708
Same Country		-4.656	-4.794	-4.79	-5.446	-5.326
Same Industry		0.59	0.552	0.55	-0.364	-0.323
# of PE firms		4.099*	4.093*	4.09*	3.976*	3.98*
Small		5.409***	5.327***	5.32***	8.716*	8.788*
GDP		-1.212	-1.212	-1.21	-1.422	-1.421
GDP at exit		2.244	2.235	2.23	1.614	1.623
GDP less 0%		-10.741	-11.034	-11.03	-12.575	-12.308
GDP 2%-5%		-1.573	-1.723	-1.72	-0.852	-0.717
GDP above 5%		1.797	1.17	1.17	4.892	5.443
Exit GDP less 0%		3.336	5.381	5.38	2.662	0.884
Exit GDP 2%-5%		8.464***	8.992***	8.99***	8.344***	7.90***
Exit GDP > 5%		7.818	6.195	6.19	3.866***	5.342
Dev * GDP less 0%		12.078	12.883	12.88	19.662	18.931
Dev * GDP 2%-5%		-13.172	-13.902	-13.90	-10.152	-9.518
Dev * GDP > 5%		-12.797	-13.343	-13.34	-9.456	-8.991
Dev * Exit GDP < 0		-12.1***	-12.4***	-	-13.05**	-12.8**
Dev * Exit GDP 0%-2%		-	-	12.43***	-	-
Dev * Exit GDP 2%-5%		7.028***	6.970***	19.40**	6.986***	7.04***
Dev * Exit GDP > 5%		20.33***	19.52***	31.95**	21.13***	21.8***
Public offering		-9.201**	-9.185**	-9.18**	-	-
SLBO		3.01	3.091	3.09	-	-
Strategic Sale		-7.616	-7.599	-7.59	-	-
Exits not Bankrupt		-	-	-	4.928	4.855
Bankruptcy		-8.423	-8.475	-8.47	-	-
Govt effective		3.966	8.967	8.96	9.918	5.486
Rule Law		-	-8.097	-8.09	-7.156	-
# of procedures		0.169	-0.033	-0.033	0.234	0.411
Debt/Cap Ratio		-0.0269	-0.027	-0.027	-0.011	-0.011
R-squared		0.040924	0.041105	0.041105	0.035725	0.03558

Note: \* significant at 1% confidence level. \*\* significant at 5% confidence level. \*\*\* significant at 10% confidence level.

Annual return is calculated by dividing the total return of the LBO/MBO by the number of days to exit, times 365 days [Annual return - (Return of LBO/# of days to exit) \* 365].

Stromberg (2008) found that LBO transactions that are sponsored by more experienced PE partnerships tend to stay in LBO ownership for a shorter period of time, are more likely to go public, and are less likely to end in bankruptcy or financial restructuring. Demiroglu and James (2010) found that reputation is positively related to buyout leverage. Our results on variable «Reputed» proves a part of hypothesis 3. Reputed PE firms result in higher returns of the target firm and take fewer days to exit.

The variable «Developing» has negative coefficient, showing that target firms from developing economies have adverse impacts on deals. This implies that if LBOs are from developing countries, then the returns are lower in general. The variable, «Same industry» is positive, implying that if the target firm and the PE firm are from the same industry, then the returns are positive. If the target firm and the buyer firm are from the same industry, they will have more knowledge about operating procedures. This might also be due to economies of scale from operating in the combined firm.

The coefficient on variable «# of PE firms» shows that if the number of PE firms is higher, then the returns are higher. This proves a part of our hypothesis 5: Club deals result in higher returns and exit sooner. This is because; in a club deal the initial price of

the LBO is depressed and hence PE firms can make a higher profit upon exit. Club deal buyers have better negotiating power with the target firm. They can also get better loan terms due to their higher reputation. Since the PE firms have the advantage of buying the LBO initially at a lower price, this results in higher returns at the time of the exit. Since more buyers are involved in the club deal, the reputation of this consortium of buyers is generally higher. The club can invest larger sums in deals, which may be beyond the capacity of a single PE firm. Officer, Ozbas and Sensoy (2010) find that club deals reduce the returns of the LBOs since they reduce the competitiveness during the initial process of the LBO deals.

The variable, «Small» has a positive coefficient, which shows that smaller firms have higher returns. This supports the results found by Demiroglu and James (2010) and Lopez-de-Silanes, Phalippou and Gottschalg (2010), who found that small investments outperform large ones. This proves a part of our hypothesis 4.

GDP growth rate at the time of initial LBO has a negative coefficient. However, GDP growth rate at the time of initial LBO should not have an influence on the realized returns. From the regression results, we also see that if GDP growth rate at exit is high, then the returns are higher. If GDP growth rate is less than 0%, at time of exit, then the returns of the LBO are highly negative. If the GDP growth rate is between 2% and 5%, then the returns of the LBO are better. If the GDP growth rate is greater than 5%, at time of exit, then the returns to LBO are high and positive.

As a unique contribution to literature, we look at the interaction between the variable «Developing» and various benchmark levels of Exit GDP growth rate. The interaction of variables «Developing» and «Exit GDP below 0%» is negative and high in magnitude. This shows that if the firm is from a developing country and if the economy is bad, then LBOs perform very badly. However, as GDP growth rate increases, the returns in developing countries increase. This is evident from interaction of variable «Developing» with «Exit GDP between 0-2%», «Exit GDP 2-5%» or «Exit GDP above 5%». If the exit GDP growth rate is between 2% and 5%, and the target firm is from a developing country, then the returns are higher by about 7% in regressions of Table 9.

If the exit GDP growth rate is above 5%, and the target is from a developing country, the results are much higher in magnitude. The returns are higher by 20%-21%. These results prove our hypothesis 1: that if the economy is booming then returns in developing countries are higher and in periods of low economic growth, returns in developed nations are higher.

When we look at how the different exit routes influence the returns of the LBO, we find that secondary LBOs result in highest returns and public offering and bankruptcy result in negative returns. Public offering data in the CapitalIQ database is probably entered in different phases that the firm went public. We run regressions using only successful exits (i.e., public offering, strategic sale and secondary LBO), the results are shown in regressions (d) and (e) of Table 9. This variable shows that returns for successful exits which exclude bankruptcy are positive. This shows that on average LBOs have positive returns when we do not take bankruptcies into account.

The variable «Government effectiveness» is positive; hence we interpret that if government effectiveness is higher in a country, then the returns will be higher. Also if the

**Table 10:** Dependent variable: Number of days to exit the LBO

Variables Coefficients	(a)	(b)	(c)	(d)	(e)
Constant	1456.47*	1134.92*	1134.92*	1493.6*	1792.4*
Returns	-1.55*	-1.54*	-1.54*	-1.81*	-1.81*
Quick flips	-1976.6*	-1978.9*	-1978.8*	-1950.2*	-1948*
Reputed	-79.93	-81.06	-81.06	-51.96	-50.85
Developing	2121.18*	2338.09*	2338.09*	2479.34*	2276.5*
Same Country	255.21*	261.02*	261.02*	308.80*	303.43*
Same Industry	231.5***	232.9***	232.9***	277.57**	275.9**
# of PE firms	-45.67	-45.41	-45.41	-38.61	-38.84
Small	-104***	-100.3	-100.3	-261.94*	-265.4*
GDP	60.61**	60.92**	60.92**	94.55*	94.23*
GDP at exit	-42.9***	-42.85***	-42.9***	-34.27	-34.34
GDP less 0%	679.14*	691.41*	691.41*	787.38*	775.51*
GDP 2%-5%	274.31*	280.66*	280.66*	244.66**	238.6**
GDP above 5%	130.83	158.03	158.03	-23.48	-49.01
Exit GDP less 0%	151.83	165.56	165.56	192.4	179.43
Exit GDP 2%-5%	-271.52*	-268.86*	-268.86*	-274.49*	-277.0*
Exit GDP > 5%	-378.99	-343.91	-343.91	-430.6**	-463**
Dev * GDP less 0%	-469.37	-504.13	-504.13	-731.47	-698.03
Dev * GDP 2%-5%	-794.24	-761.67	-761.67	-872.35	-902.35
Dev * GDP > 5%	-416.80*	-392.6**	-392.59	-532.23	-554.21
Dev * Exit GDP < 0%	-2234.16	-2161.73	-	-2229.6*	-2299*
Dev * Exit GDP 0%-2%	-	-	2161.7**	-	-
Dev * Exit GDP 2%-5%	-655.45	-677.96	1483.7**	-772.83	-752.89
Dev*Exit GDP > 5%	-1090.84	-1179***	982.74	-1178.64	-1097.1
Public offering	494.46*	493.45*	493.45*	-	-
SLBO	-6.05	-9.63	-9.63	-	-
Strategic Sale	187.74**	186.9***	186.9***	-	-
Exits not Bankrupt	-	-	-	52.61	56.04
Bankruptcy	152.08	154.32	154.32	-	-
Govt. effective	271.88**	53.89	53.89	0.68	206***
Rule Law	-	352.49	352.49	331.04	-
# of procedures	1.3	10.1	10.1	-3.69	-11.91
Debt/Cap Ratio	0.93	0.94	0.94	0.189	0.18
R-squared	0.29080	0.29138	0.29138	0.27456	0.27405

Note: \* significant at 1% confidence level. \*\* significant at 5% confidence level. \*\*\* significant at 10% confidence level.

Number of days to exit is the total number of days from the initial LBO/MBO to the date that the LBO/MBO exited through one of the exit routes.

Target firm's Debt/capital ratio is high, then returns are lower since higher debt levels are perceived to be more risky for the PE firm.

Table 10 results of regressions a-e, show that coefficient of the variable «Returns» is negative. This means that if the returns of the LBO are high, then the LBO exits sooner. From the variable «Reputed» we see that if the PE firm is a reputed firm, then the LBO exits sooner by 180 days on average. From the coefficient of variable «Developing» we interpret this to mean that if the target firm is from a developing country, then the LBO takes longer time to exit. Co-efficient of variable «Developing» is positive, but from the data in Table 7, it was evident that LBOs in developing economies exit sooner. However when separate regression was performed, variable «Developing» had a negative co-efficient implying that LBOs in developing economies exit sooner.

If the «# of PE firms» is higher, then it takes less number of days to exit the LBO. This shows that on average Club deals take shorter time periods to exit mainly due to the reputation of the syndicate of buyer firms. This proves the remaining part of our Hypothesis 5.

**Table 11:** Regression using «Annualized return» («Returns») as the dependent variable and new interaction variable «Club deals in Developing economies» is added

Variables	Coefficients	(a)	(b)	(c)	(d)
Constant		26.89***	34.171***	15.44318	21.82902
Days to exit		-0.00355*	-0.00354*	-0.0041*	-0.00406*
Quick flips		7.1805***	7.267***	5.660496	5.729678
Reputed		5.389***	5.419***	5.3824***	5.4095***
Developing		0.1493	-5.0762	-3.119757	-7.741038
Same Country		-4.6286	-4.766	-5.306546	-5.42698
Same Industry		0.5701	0.5346	-0.341088	-0.379135
# of PE firms		4.1468*	4.137*	4.015530*	4.007219*
Club deal * developing		-8.111	-7.479	-5.83696	-5.258955
Small		5.3792***	5.3007***	8.767344*	8.698445*
GDP		2.229	2.2216	1.611658	1.60415
GDP at exit		-1.239	-1.2371	-1.440688	-1.439431
GDP less 0%		-10.768	-11.055	-12.33385	-12.59467
GDP 2%-5%		-1.54	-1.6912	-0.694557	-0.82944
GDP above 5%		1.897	1.2711	5.518317	4.965735
Exit GDP less 0%		4.0784	2.7707	2.638924	1.449081
Exit GDP 2%-5%		4.4127	5.2482	4.982463	5.707646
Exit GDP > 5%		0.1121	2.3773	-1.444426	0.542712
Dev * GDP less 0%		13.703	14.369	20.10213	20.70789
Dev * GDP 2%-5%		-10.068	-11.029	-7.285949	-8.132638
Dev * GDP > 5%		-12.451	-13.0157	-8.736699	-9.221353
Dev * Exit GDP < 0%		-12.24***	12.546**	-12.865**	-13.133**
Dev * Exit GDP 2%-5%		7.065**	7.057***	7.0644***	7.0110***
Dev*Exit GDP > 5%		20.492***	19.688***	21.955***	21.245***
Public offering		-9.1999**	-9.184**	-	-
SLBO		3.051	3.1286	-	-
Strategic Sale		-7.58	-7.5657	-	-
Exits not Bankrupt		-	-	4.873169	4.94317
Bankruptcy		-8.431	-8.4825	-	-
Govt effective		4.204	9.112	5.664603	10.02508
Rule Law		-	-7.976	-	-7.068135
# of procedures		0.1733	-0.02617	0.414848	0.239128
Debt/Cap Ratio		-0.0267	0.026855	-0.01113	-0.01118
R-squared		0.04096	0.041137	0.035603	0.035741

Note: \* significant at 1% confidence level. \*\* significant at 5% confidence level. \*\*\* significant at 10% confidence level.

The results in Table 10 also show that small firms exit sooner when compared with larger firms. This could be because of the ease of finding buyers for a firm that is smaller in market capitalization. This proves the remaining part of Hypothesis 4.

The Higher the GDP growth rate at the time of initial LBO, the longer it takes to exit (variable «GDP»). Higher GDP growth rate at the time of exit of the LBO results in sooner exits (variable «GDP at exit»). If the GDP growth rate at the time of initial LBO was less than 0%, then the LBO takes 680 – 750 days more (variable «GDP less 0%»). If GDP growth rate at the time of initial LBO was higher than 2% but less than 5%, then the LBO takes about 240 days more to exit (variable «GDP 2%-5%»). If exit GDP growth rate was above 5%, then the LBOs exit soonest (49 to 158 days).

For proving our main Hypothesis 2, we use interaction variables between «Developing» and the different exit GDP growth rate benchmarks. The interaction variable between «Developing» and «Exit GDP below 0%» shows that if the exit GDP growth rate was below 0% and if the target firm is from a developing country, then the exit takes shorter time to exit when compared with developed markets (variable «Dev \* Exit GDP < 0»). This is because if the PE firm invests in a target firm in the developing market and the



**Table 12:** Regression using «# of days to exit» as the dependent variable and new interaction variable «Club deals in Developing economies» is added

Variables	Coefficients	(a)	(b)	(c)	(d)
Constant		1456.926*	1133.383*	1786.181*	1483.846*
Return		-1.554886*	-1.545503*	-1.814695*	-1.806645*
Quick flips		-1976.581*	-1978.861*	-1948.364*	-1950.268*
Reputed		-79.88703	-81.16991	-51.39986	-52.68096
Developing		2117.914**	2347.332*	2319.290*	2535.444*
Same Country		255.1887*	261.0963*	303.7490*	309.2434*
Same Industry		231.5447***	232.9220***	275.6022**	277.2005**
# of PE firms		-45.71471	-45.29104	-38.27603	-37.88409
Club deal * developing		7.40596	-20.46555	-96.62375	-123.7555
Small		-103.889***	-100.3742	-265.7274*	-262.3494*
GDP		60.62993**	60.89136**	94.03529*	94.31098*
GDP at exit		-42.8806***	-42.9196***	-34.67139	-34.69611
GDP less 0%		679.1685*	691.3584*	775.0765*	786.8975*
GDP 2%-5%		274.2893*	280.7513*	238.9919**	245.1824**
GDP above 5%		130.7411	158.3146	-47.77857	-21.73953
Exit GDP less 0%		151.9554	165.2519	177.879	190.4942
Exit GDP 2%-5%		-271.5631*	-268.7655*	-276.5744*	-273.9069*
Exit GDP > 5%		-379.1403	-343.4605	-461.492***	-427.83**
Dev * GDP less 0%		-470.8624	-500.0659	-678.6343	-706.8331
Dev * GDP 2%-5%		-797.0713	-753.8193	-865.3971	-824.826
Dev * GDP > 5%		-417.1217	-391.6951	-549.9978	-526.7046
Dev * Exit GDP < 0%		-2230.748**	-2171.106**	-2344.193*	-2286.459*
Dev * Exit GDP 2%-5%		-651.7491	-688.2087	-801.2137	-834.8507
Dev*Exit GDP > 5%		-1087.895	-1187.208	-1135.659	-1228.487
Public offering		494.4644*	493.4596*	-	-
SLBO		-6.087216	-9.52811	-	-
Strategic Sale		187.7082***	186.9866***	-	-
Bankruptcy		152.093	154.3037	-	-
Govt effective		271.668**	54.29106	208.8852***	3.196335
Rule Law		-	352.8241	-	333.1079
# of procedures		1.296821	10.1169	-11.85401	-3.566986
Debt/Cap Ratio		0.935578	0.939973	0.190322	0.192729
R-squared		0.290801	0.291383	0.274055	0.274575

Note: \* significant at 1% confidence level. \*\* significant at 5% confidence level. \*\*\* significant at 10% confidence level.

GDP growth rate declines to less than 0%, then the PE firm would like to exit sooner in order to avoid greater losses. In periods of moderate economic growth rate (Exit GDP between 0%-2%) the LBOs in developing economies take longer periods to exit.

If the target firm was from a developing country, and if the GDP growth rate was between 2%-5%, then the LBO takes about 832-956 days less to exit (variable «Dev \* Exit GDP 2%-5%»). If the GDP growth rate was above 5% and the target firm was from a developing country, then the LBO takes about 1400 days less to exit (variable «Dev \* Exit GDP >5%»).

When we examine the effect of different strategies on exit times for exited LBOs, we find that public offering method of exit is the most lengthy. This is mainly due to higher complexity and regulations required for this type of exit. Strategic sale and bankruptcy methods also take long time periods to exit. LBOs that exit through secondary LBO method take the shortest time periods to exit.

If government effectiveness or rule law in a target country is high, then it takes longer time to exit. If the number of procedures required to start a business are high, then it takes longer time to exit due to the difficulty of starting as a new entity after exit. And

if the Debt/Capital ratio of the target firm is high, it takes longer time to exit the LBO. The high amounts of debt in the firm may take longer time to be paid off.

Table 11, the variable «Club Deals in Developing Economies» (Club deal \* Developing) is added to test if club deals in developing economies have higher or lower returns as compared to club deals in developed economies. We can see that the returns for club deals in developing markets are negative showing that club deals are profitable in developed nations alone.

In Table 12, from the coefficient of interaction variable «Club Deals with Developing Markets», we see that club deals in developing markets in general take shorter time to exit. This may be a result of the negative returns of club deals in developing markets and also as a result of discrepancies between the consortium PE firms. Hence the PE firms would like to end the club deal sooner in developing markets as compared to club deals in developed markets.

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## 7 Conclusion

The results show that LBO targets in developed economies have higher returns on average, when averaged across the entire business cycle. However, when we examine LBOs in developing economies during periods of higher GDP growth rates, we find that their LBOs have higher returns than those of developed economies. This is because in periods of high economic growth, developing economies have a higher growth rate in general when compared to developed economies. Whereas when the growth of the economy is moderate or slow, the returns of LBOs in developing nations do not compensate for the risks inherent in investing in them.

During periods of very high economic growth and in periods of negative economic growth, LBOs in developing economies take shorter time to exit when compared to LBOs in developed economies. This is because when there are high perceived returns in developing nations during periods of higher growth periods, PE firms exit sooner than apparently warranted, to avoid the higher levels of macro and micro risk associated with developing economies. That is unlike in developed economies, they do not allow their successful projects to run very long. Similarly, PE firms also try to avoid major losses if the economic growth rate becomes negative and hence exit LBOs in developing economies sooner at the first sign of trouble. Downturns in developing economies are more severe and last longer than in developed economies.

We find that reputed PE firms result in higher returns and lesser days to exit. We also find that smaller firms have higher returns when compared to larger firms, and take fewer days to exit. The results show that club deals result in higher returns and take shorter time to exit when compared with single PE deals. This is because of the reputation of the syndicate of firms in club deals which lets them get better terms on the initial LBO and hence it results in higher returns. Moreover, due to the reputation of club deal firms, they can also exit sooner. However club deals in developing economies are not profitable and exit sooner.

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