

Determinants of Leverage Ratio in Leveraged Buyouts and Its Influence on the Profitability of Enterprises After Buyout

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Abstract:

This article explores the determinants of leverage ratio in leveraged buyouts (LBO), introducing the definition of leveraged buyouts and their history of development. This paper identifies tangibility of assets, adequacy of cash flows, sources of finance and the macroeconomic condition as the main determinants of companies' ability to sustain high leverage ratio. After studying the factors affecting the leverage ratio, the paper evaluates the effect of leverage on the post-acquisition profitability of the companies involved in the LBO transaction. The paper features an example of the LBO of H.J. Heinz by 3G Capital and Berkshire Hathaway as a positive mechanism that supports the statement that LBO can provide benefits to the companies through tax shield effect and motivation in more efficient operations. However, there are two sides of a spectrum, the negative mechanism of LBO is shown by the case of the LBO of Toy R Us by Bain Capital, KKR, and Vornado. This prominent negative example demonstrates that the leverage can exert financial pressure on the company that potentially leads to greater financial vulnerability during business or economic downturns.

Keywords: Leverage ratio; leveraged buyouts; profitability of enterprises after buyout.

1. Introduction

An LBO is a form of acquisition that involves one company taking over another company by financing most or all of its purchase price through borrowing, for instance, through issue of bonds or security loans rather than the buyer's own equity. Through the process of obtaining the loans, the acquiring firm finances a substantial portion of the purchase prices through debt, often securitized by the assets and cash

flows of the target company itself. This financing structure allows firms to undertake large-scale acquisitions even when their internal capital is limited, effectively allowing the investor to amplify returns through financial leverage [1].

Historically, LBO emerged in the late 1970s and became especially prominent in the 1980s with the high yield bonds invented by Michael Milken, bringing an essential source of financing. However, during

this era, excess speculation and loosely drafted covenants led to overpricing, which soon resulted in an unfortunate crash in the high-yield bonds market. Until the early 1990s, the economy was focusing on economic recovery and revision of LBO has led to the next boom of LBO transactions.

In the last decade, the economy was slowly healing and recovering from the great financial crisis. In December 2010, the US government supported the streamline of the financial system of the country with a rescue package of USD 700 Billion. The banks and institutions also kept the interest rate low, creating a perfect ground for LBO deals [2].

In recent years, LBO has become one of the most influential forms of acquisition in the global corporate market. With the growth in private equity funds and the deepening of credit markets, the total value of LBO transactions has expanded worldwide. This growing trend highlights the importance of understanding how the proportion of debt financing versus the buyer's own equity, which is known as the leverage ratio, affects the profitability of this acquisition to the firm [3].

Leverage ratio is a central element of the firm's capital structure, which determines the balance of debt and equity that directly alters the firm's risk portfolio and financial flexibility. The prior research mainly focuses on the introduction of Leveraged buyouts and private equity, which discusses how the private equity firms can carry out mergers or acquisitions financed by the combination of debt and equity. Additionally, case analysis of complex LBOs transactions and ethics and social issues of LBOs were also the major topics leveraged buyouts related research largely emphasised on. [4-6]

However, while the mechanics of leverage buyouts and private equity financing have been widely studied, there are not many existing studies on how the leverage ratio affects post-acquisition profitability through its positive or negative impact. On the one hand, loans and debts can enhance the profit through mechanisms like reduced equity dilution or greater ability to access higher synergetic companies. On the other hand, the excessive leverage ratio may suppress the company's profit due to the high interest expense, repayment pressure and vulnerability in major economic vitalities and fluctuations.

In addition, the outcomes of leveraged buyouts may be different in different industries or even different firms. The degree of benefits depends on a large number of other moderate factors. From the corporates' perspectives, the level of stability of cashflows and the level of tangibility of assets, which can be used as collateral, largely determines the firms' ability to sustain high levels of leverage. Industrial wise, the intensity of investments and assets and cyclicality affects the availability and cost of debt financing to a large extent. From the viewpoint of macro-

economics, the interest rate and the credit market environment can either exemplify or diminish the effect of leveraged buyouts. These contextual differences imply that the relationship between leveraged buyouts and profitability is not absolute, instead, it is rather conditional.

Hence, this paper will further investigate the relationship between the leverage ratio and profitability in LBOs. Specifically, identifying the core determinants of leverage ratio in LBOs, studying the positive and negative mechanisms of LBOs and examining which are the moderate factors which are related to the profitability of LBO cases. By combining theoretical analysis with empirical insights from the previous research, this paper contributes to providing a clearer vision on how financial leverage choices affect the post-acquisition performance in terms of profitability.

The following parts of the paper will be divided into two main sections, the first section will discuss the core determinants of leverage ratio which includes the companies' assets and liabilities characteristics, the sources of borrowed funds, etc. The second section will evaluate the impact of LBOs to profit from both pro and con perspectives.

2. Core Determinants of Leverage Ratio

Leverage ratio is Leveraged buyouts is shaped by several factors that reflect the target firm's internal financial and operational characteristics, and the external conditions of credit and macroeconomic environment. These determinants jointly affect the acquirers' ability to secure financing, the costs and terms of loans and strategic rationale behind using leverage buyouts in the first place.

2.1 Characteristics of Target Company's Assets and Cashflow

The structure of the target firms' assets and its capacity for generating stable and adequate cash flow serve as a fundamental determinant of the leverage ratio in an LBO transaction. This is because, as mentioned above, the acquiring firm will also provide the assets and cashflow as collateral to apply for loans from banks, lenders will evaluate the tangibility and the resale value of the assets to assess the firm's reliability and capacity for supporting high leverage.

Specifically, for firms with substantial physical and tangible assets, such as firms involving manufacturing, warehousing, transportation or infrastructure. They can sustain a higher leverage ratio since the physical assets can be used as collateral for borrowing. The presence of higher value of collateral lowers the lender's risk, usually banks or other financial institutions, as they are able to sell these

tangible assets in the case where the borrowing company fails to repay the debt. With the lower risk the banks are being exposed to, they may be able and willing to offer the company a lower and more favorable interest rate and more loans. By contrast, asset-light companies such as consulting agencies, software developers, technological or media companies, which often lack sufficient value in tangible assets that can be used as collateral. The risk of losing the loans for the lender, hence, the lender will not be able to offer a high amount of loans and favorable interest rates. Consequently, they exhibit lower optimal leverage ratios [7].

In addition to the asset values, the stability of cashflow is also an essential factor that determines the leverage ratio of the acquisition or merger. Even if the company possesses valuable assets as collateral, a high leverage ratio cannot be sustained without the ability to generate consistent and predictable cash flows. Companies with more stability and resistance to volatility will be more likely to meet the periodic repayment of the loans. The strong company performance such as high profitability is also evidence of the company's ability to support high values of loans. On the other hand, the firm is sensitive to cyclical fluctuations or highly volatile industries, the lack of reliable cashflow and profitability performance makes them inappropriate for obtaining high leverage ratio. Hence, the firm's leverage ratio is jointly affected by the tangibility of the asset and the stability of cashflow and business performance [8].

2.2 Sources of Acquisition Financing

An LBO's financial capital structure may include bank debt, which is also known as the senior debt, subordinated or high yield debt, Mezzanine debt and buyer's own equity. Each of the different components of the structure has different flexibility and differs in terms of cost, creating trade-off effects that affect the overall leverage ratio level [9].

Senior bank loans are the primary and least expensive form of financing the companies usually utilize in an

LBO, usually accounting for 50-80% of the entire structure. It is usually secured by the firm's assets and has the highest priority in terms of repayment compared to any other loans. Due to its secured nature, it usually comes with a lower interest rate, although it contains restrictive covenants on the companies' operations. For instance, limiting growth of business, dividend restrictions, or mandatory repayment schedule. Its favorable interest rate gives the companies the ability to sustain a higher leverage as the cost of borrowing is less significant.

High-yield debt, also known as subordinated debt or junior debt, carries a higher interest rate because lenders will only be paid after senior debt holders during financial distress. While costlier, it has fewer restrictive covenants, leaving more freedom and flexibility to the company.

While mezzanine debt is just a small middle layer in the financing structure that is a hybrid of debt and equity. It is usually financed by hedge funds or invested in private equity and comes with the highest interest rate among all the three types of debt [9].

The proportion of each financing directly influences the final leverage ratio. When a greater source of financing comes from senior or subordinated debt, the leverage ratio increases as it requires less equity from the buyer since the cost of borrowing is relatively lower and quite a large proportion of the funds can be covered by the amount borrowed. Conversely, if the debt mainly comes from high-yield or mezzanine debt, the amount borrowed and the interest rate will be less favorable. Hence, the buyer will be more willing to use more of its own equity, lowering the leverage ratio of the transaction.

2.3 Macroeconomics Factors

Beyond firm level determinants like the structure of finance and the assets and cash flows of the business itself. The macroeconomic conditions - interest rate environment also exert significant influence on the leverage ratio employed for leveraged buyouts.

Table 1. Number of LBO transactions for various time periods from 1980-2012

Time Period	Number of LBO/MBO transactions	Percentage of LBO and MBO transactions
1980-1989	554	1.3554%
1990-1999	3,713	9.081%
2000-2009	28,351	69.3416%
2010-2012	8,268	20.222%
Total	40,886	

Data source: [10]

Table 1 shows a clear relationship between interest rate and the number of LBO deals as the table shows that almost 70% of the total LBO transactions from 1980-2012

occurred during 2000-2009, a decade characterized by historically low interest rate and abundant credit. With borrowing cost significantly reduced, the firms face lower financial burden when servicing debt. This macroeconom-

ic environment made LBO more attractive, as companies can rely on cheaper loans to finance acquisitions while keeping repayment pressure manageable. Consequently, firms were more willing to employ higher leverage ratios, leading to substantial rise in deal volume during this period of time, reflected by the 28,351 deals.

In contrast, earlier and later decades where interest rate were comparatively higher such as 1990-1999. There were significantly few LBOs since the higher borrowing cost contribute to greater opportunity cost of taking the debt, diminishing the appeal of highly leveraged transactions. When interest rate rises, firms must allocate more resources to repay principal and interest that leads to riskier leverage strategy and lower profitability.

Overall, the pattern across 4 time periods suggest that leverage ratio is highly sensitive to the cost of borrowing, therefore the macroeconomic environment. A lower interest rate environment reduces financing constraints, allowing firms to capitalize debt-funded transactions more readily.

3. Positive and Negative Mechanisms of Leverage to Profitability

The effect of leverage on post-acquisition profitability of the firm is unidirectional. While the debt can increase returns under certain strategic or operational conditions, it can also undermine the profitability when there is difficulty in repaying the debt, greater financial vulnerability or amplified pressure during economic downturns.

3.1 Positive Mechanism

Firstly, the most famous advantage of leverage is its tax-shield effect. Tax shields suggest that payment of interest on debt is deductible from tax, which decreases the taxable income and increases the after-tax profit of the company. For profitable firms, the deduction can potentially lead to substantial savings that effectively lower the average cost of capital, improving net earnings and cash flows and allowing the acquirer to achieve higher profitability compared to pure equity acquisitions [11].

Secondly, the LBOs sometimes unlock opportunities for faster and stronger synergy between the two companies as the companies' performance is governed by stricter requirements and the ownership will be more performance-driven due to the need to repay the loans on time. In typical mergers and acquisitions transactions, the companies are not directly exposed to financial risks, but in an LBO, the companies will be heavily leveraged, the managers must set intense operational discipline to generate strong cash flows to quickly service the debt. This pressure has provided the companies with the opportunity to unlock better managerial discipline and efficiency

incentive, that encourages faster integration between the acquiring and target companies, Management teams are more incentivized to cut redundant costs and consolidate production chains.

A prominent example is the 2013 leveraged buyout of H.J. Heinz by 3G Capital and Berkshire Hathaway. Following the acquisition, the new owners introduced aggressive cost management and operational standardization, which raised operating margins and paved the way for the later merger with Kraft Foods in 2015. These results illustrate how LBOs' financial discipline and incentive alignment can accelerate synergy realization and improve profitability more effectively than in conventional M&A settings [12].

3.2 Negative Mechanism

However, despite the positive effects brought about by the Leverage, the LBOs also come with risks and may affect the companies through negative mechanisms.

One of the most serious factors that prevents LBO from being successful is its debt service obligations' impact on the company's cashflow and net profit, potentially leading to underinvestment. In an LBO, regardless of the firm's financial performance, they have to repay the principal and interest on time. Even if the company is making a decent profit after the acquisition, part or most of the profit will be used to repay the debt, which significantly hinders the company's ability to use the profit as funds for reinvestment or reserved cash. This causes great opportunity costs for the company during the period of repayment.

In the time period when the economy or business is going through downturns. The interest rates may rise, and the companies may not possess enough margins or profits to sustain the debt with higher interest rates. As a solution, the company may have to sell part of its assets to raise the funds to return the debt, increasing its vulnerability during an economic crisis.

A well-known example of the negative mechanism of LBO can be seen from Toys R Us. In 2005, Bain Capital, KKR, and Vornado jointly took over Toys R Us in the form of LBO, with a \$7.5 billion debt. After the transaction, the company became heavily in debt. According to the study done by school of Wharton, University of Pennsylvania, Toys R Us was spending billions of dollars to serve its leverage so a large proportion of its operating cash flow was allocated to repay the loan rather than reinvesting it to upgrade the facilities of the stores, e-commerce and respond to the rising competition from Walmart, Target and Amazon. Hence, the company's strategy becomes less flexible and its profitability has been significantly undermined, causing its bankruptcy [13].

4. Conclusion

In conclusion, this paper examines the various factors affecting the leverage ratio of a leveraged buyout. The analysis demonstrates that the greater tangibility of assets and stability and adequacy of cash flows of the target firm, greater leverage the companies can support. And more of the senior and subordinated in the finance structure, the lower the overall interest rate and the greater amount available for funding the cost of mergers and acquisitions. On top of that, the macroeconomic interest rate environment is also an important factor affecting the leverage ratio, the lower the interest rate, the lower cost the companies have to pay in addition to the principal, allowing greater willingness and ability to have greater leverage.

Moreover, the paper also discusses how leverage affects the post-acquisition profitability of both acquiring and target firms, featuring the example of H.J. Heinz by 3G Capital and Berkshire Hathaway as a positive mechanism and Bain Capital, KKR, and Vornado jointly taking over Toys R us as a negative example.

On the positive side, the companies can benefit from the greater synergy motivation and tax shield effect. On the other side of the spectrum, the debt service obligation significantly hinders the firms' ability to foster business growth through investment. They even increase economic vulnerability during business and economic downturns like rising interest rates.

Therefore, the effect of leverage on profitability is essentially incoherent. Optimal leverage is achieved when financing decisions aligning with the firm's asset base, cash flow resilience, industry stability and the broader credit environment. Understanding these factors is essential for leveraging debt as a strategic tool rather than exposing the firm to avoidable financial distress.

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