upna
Universidad Pública de Navarra
Nafarroako Unibertsitate Publikoa

fec>>
school of economics
and business administration
facultad de ciencias
económicas y empresariales
ekonomia eta enpresa
zientzien fakultatea

Facultad de Ciencias Económicas y Empresariales

TRABAJO FIN DE GRADO EN

Programa Internacional de Administración y Dirección de Empresas.

# IS PANBREXIT ALLOWING ABUSIVE BEHAVIOUR BY US PRIVATE EQUITY FUNDS?

Raquel Antolí Ochoa

Pamplona-Iruña 13 de mayo de 2022

Módulo:

Contabilidad

Director:

Fermín Lazarraga Dallo

**RESUMEN**

Reino Unido ha experimentado una situación única debido a la Pandemia causada por el Covid-19 y el Brexit. Esta situación bajó los precios de mercado e hizo aumentar el interés de los fondos de capital riesgo estadounidenses por las compañías británicas, creando así una preocupación entre la prensa de este país. Este trabajo fin de grado analiza si dichos LBOs se adaptaron a esta situación bajista o actuaron con la agresividad que les caracteriza en periodos alcistas, justificando así esta preocupación. Para responder a esta cuestión he estudiado 5 empresas británicas que fueron adquiridas por un fondo de capital riesgo estadounidense durante el 2020. Se utilizan los estados contables de la empresa antes y después de la adquisición para mostrar distintos aspectos como el sobrepago, deuda y rentabilidad. Mis resultados muestran que, a pesar de esa situación tan única y aparentemente bajista, las LBOs actuaron agresivamente provocando efectos negativos en la empresa adquirida y justificando la preocupación mostrada por la prensa.

**PALABRAS CLAVE**

Leverage Buyouts (LBO), Empresas inglesas, Pandemia del Covid-19, Brexit

**ABSTRACT**

The UK experienced a unique situation due to the coincidence of two events, the Covid-19 Pandemic, and the Brexit. This situation decreased market prices and increased the interest of US PE funds on UK target companies, which raised concern among the UK media. This project analyses if such leverage buyouts (LBO) adapted to this bearish situation or acted with the typical aggressiveness of a bullish period, justifying the press concern. To answer this question, I study 5 UK cases of companies acquired by US PE funds during the year 2020. Financial statements of the target company pre and the ultimate newco post are used to illustrate the overpayment, leverage, and profitability. My results show that despite the apparently bearish character of this unique situation, the LBOs acted quite aggressively leading to the typical negative effects on the target companies and thus justifying the concerns displayed by the media.

**KEY WORDS**

Leverage Buyouts (LBO), UK companies, Covid-19 Pandemic, Brexit

# INDEX


1. Introduction ........ 6

2. The UK Private Equity Buyout market ........ 8

3. The PanBRexit UK scenario and the interest of US PE funds ........ 12

   3.1 Pandemic ........ 13

   3.2 Brexit ........ 14

4. The British reaction to the rise of Private Equity investment during PanBrexit. 15

5. Research questions ........ 17

6. Sample and methodology ........ 17

   6.1 Sample collection. A tedious process. ........ 17

   6.2 Methodology ........ 21

7. Results ........ 22

   7.1 Results for $SRQ_1$: Overpayment ........ 22

   7.2 Results for $SRQ_2$: High leverage ........ 25

   7.3 Results for $SQR_3$: Value creation ........ 27

8. Conclusions ........ 34

9. References ........ 35

10. Appendix ........ 38

## LIST OF FIGURES

**Figure 1.** Illustration of the vertical structure of a Leverage Buyout. ............................ 9

**Figure 2**. Amount invested by Private Equity between 2007 – 2021. .......................... 10

**Figure 3**. Total UK PE Quarterly deal volume and value (£bn). .................................. 11

**Figure 4.** FTSE 100 ........................................................................................ 12

**Figure 5.** Sampling Process. ........................................................................... 19

**Figure 6.** Corporate restructuring of Energy Assets. .................................................. 21

**Figure 7.** Decomposing Profitability. .............................................................. 28

**Table 1**. Goodwill (in millions of £). ............................................................... 22

**Table 2.** Goodwill to Total Assets ratio. ......................................................... 23

**Table 3.** Goodwill to Equity ratio. .................................................................. 24

**Table 4.** Debt variation in millions of pounds. ........................................................ 26

**Table 5**. Debt to Total Assets ratio. .................................................................. 27

**Table 6**. Return on Equity. ............................................................................ 29

**Table 7**. Return of assets ratios. ........................................................................ 30

**Table 8.** Return on Net Operating Assets disaggregation. ........................................... 31

**Table 9.** Financial Leverage Gain Variation. ......................................................... 32

# 1. INTRODUCTION

The predominant type of investment practiced by PE funds is the buyout, which consist of the acquisition of the controlling ownership of a target company. As most buyouts are predominantly financed with external debt, they are usually known as leverage buyouts (LBOs). LBOs increase dramatically during boom economic cycles. One of the notorious characteristics of this type of investment is paying a high not always justified) price. They also use a high percentage of debt to finance the acquisition, which is then assumed by the target company.

LBOs have existed in the UK since the 1980s. In the recent years, the UK has experienced a unique situation, due to the coincidence of two particular events: the pandemic caused by Covid-19 and the entry into force of Brexit. Such a circumstance, that I have named PanBrexit had never occurred in any European country. The situation led to a decrease in market prices, which simultaneously generated an increase of the interest of US PE funds in UK-target companies. The bad reputation and aggressive background of LBOs raised a concern within the UK media, as they saw the dangers of an increasing number of British companies being taken over in an LBO. This is an interesting and controversial situation that really surprised me when I first read about it. Since then, I have been interested in finding out more about how LBOs would be affecting the English target market. Besides, it allowed me to combine different areas (macroeconomics, finance, accounting) in the same project.

The main objective of this final degree project is to study if this media concern is justified since, PanBrexit was a bearish market phenomenon and the critics to the aggressiveness of PE funds (overpayment, debt abuse and value destruction) are more typical of bullish times. My intention was to develop a sample methodology. However, the lack of transparency that characterizes the corporate restructuring processes that accompany LBOs only allowed for the study 5 cases which, on the other hand, gives a more detailed view of the problem. An important part of the project is devoted to illustrating such difficulties.

My results show how, overpayment (represented by goodwill) and, in most cases, becomes a large percentage of total assets after the LBO. I also observe how the proportion of debt increases aggressively and how the company's profitability and value deteriorate after the acquisition. These indicators, examined in detail, give us the feeling

that LBOs acted with the aggressiveness typical of bullish times, and therefore the British media had reasons to be concerned.

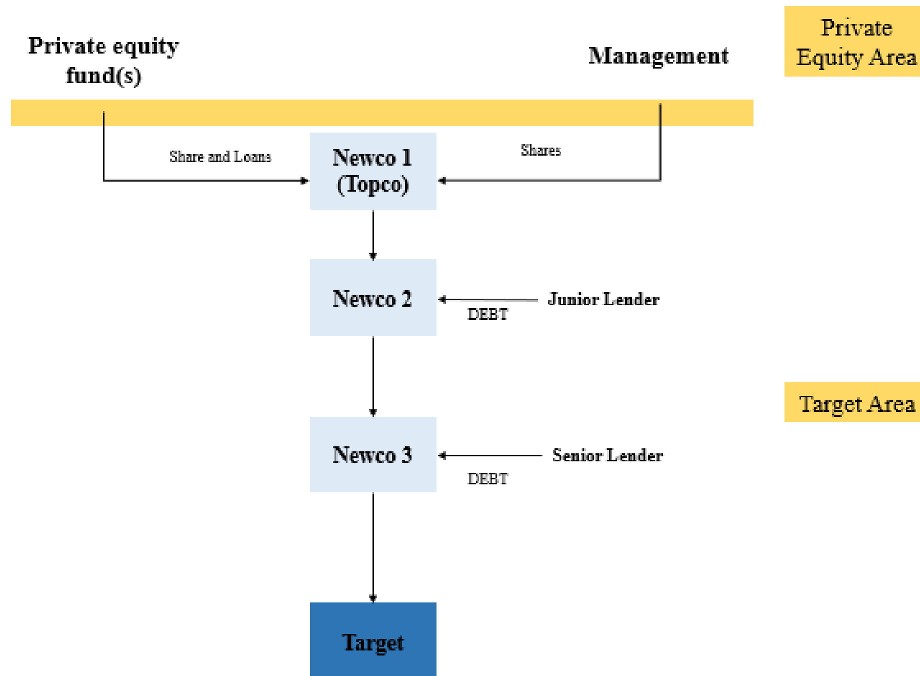
## 2. THE UK PRIVATE EQUITY BUYOUT MARKET

Private Equity Companies engage in taking temporary stakes in the capital of companies that are simultaneously unlisted. Public corporations typically have a balance of 80% equity to 20% debt, on which it pays interest. In a private equity buyout, this ratio is reversed, since 80% to 90% of the purchase is financed through debt (IUF, 2007). PE funds are organised as separate limited partners with two distinct kinds of partners. One of them is the managing financers which are general partners that contribute around 2% of the equity fund. The rest is provided by outside investors, such as pension or endowment funds, which are called limited partners (Erturk, Froud, et al., 2010). Limited partners usually expect higher rates of return investing in this type of investment rather than on the stock market. These investors can participate in three different types of private equity: venture capital, growth equity and buyouts. While venture capital is made in an early-stage start-up, growth equity is done once the company is established but needs additional funding to grow. Buyouts, the ones analysed in this study, occur when a mature company is taken private.

Private Equity investments in the UK are not a new phenomenon in the world of investment and financing. Buyouts by private equity firms have increased exponentially since the early cases of the 1980s (Belyakov, 2020). A relevant aspect of PE is the corporate structure behind the acquisition. Belyakov (2020) explains that in order to finance and execute an acquisition, the PE creates a vertically integrated parent-subsidiary chain of holding companies. In particular, the UK case is characterised by the high number of newcos created in every acquisition thereby leading to a complex multilayer structure. Consequently, to carry out the analysis, I must include not only the target company but all the companies that take part in this new structure.

Figure 1 summarizes the typical structure of an LBOs in the UK:

**Figure 1.** Illustration of the vertical structure of a Leverage Buyout.




Source: Own elaboration from Erturk, et al., (2010).

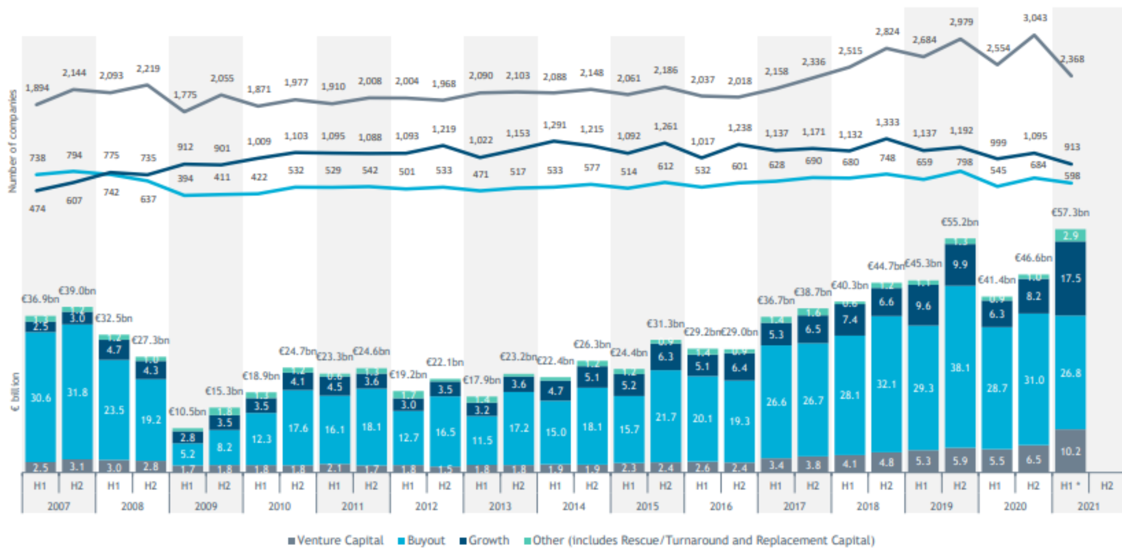
As mentioned before, the existence of this type of investment in the UK has been going on for years. The history of private equity buyouts in the UK might be organized in three periods. The *first period* goes from its origins in the early 90s until 2007. During this period, PE provided a high return for investors. In 2005-2007, the global economy experienced one of its best cycles in decades. This led to an increase in investments in Europe, with buyouts predominating over other types of PE investments. Only in UK, between 1995 and 2007, 15.652 companies received finance from private equity funds (Morgan, 2009).

At the end of this period, the media, trade unions and even some politicians began to denounce the lack of transparency and morality of this type of buyouts. David Walker, a former deputy governor of the Bank of England, played a key role in these complaints. He persistently showed his dissatisfaction with the lack of transparency perceived in the PE industry. In early 2007 he was chosen to produce a document known as the "Walker report". The British Private Equity & Venture Capital Association (BVCA) asked Walker to conduct an independent review of the adequacy of disclosure and transparency in PE. This document was published in July 2007 and its main objective

was to establish a set of guidelines for the portfolio of those PE companies that agreed to participate in this annual report voluntarily (Guidelines Monitoring Group, 2011). Due to its voluntary character, PE funds only show the acquisitions that are convenient for them, thus illustrating the lack of transparency that typify LBOs. This is so as only the PE companies interested in sharing their data participate in this yearly report. Therefore, there is no chance to know objectively the actual impact that Private equity has on the target company population. There are also other types of reports related to the economic activity that private equity firms have annually. The most relevant for this study are the reports produced by InvestEurope, the European PE association, and those produced by the BVCA.

The *second period* is set between 2007 and 2018. Throughout this period, private equity investments were unstable due to several factors. The main one was the global financial crisis in 2008 that had a major impact on this type of investment, as can be seen in Figure 2.

**Figure 2**. Amount invested by Private Equity between 2007 – 2021.




Source: InvestEurope. (2021). *Investing in Europe: Private Equity Activity H1 2021*.

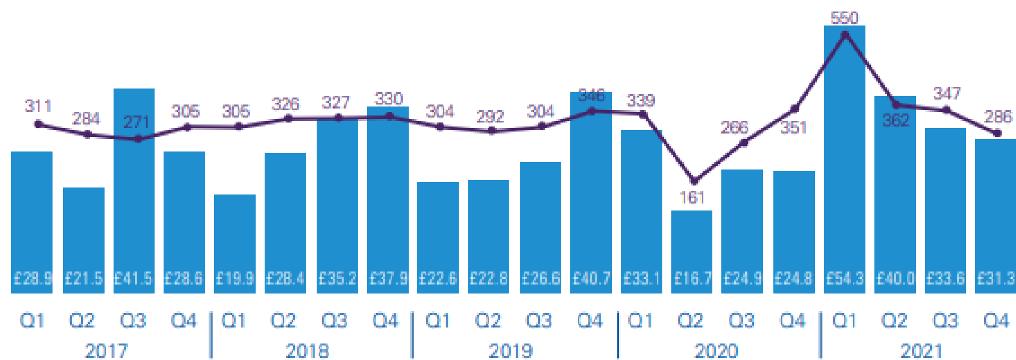
During these years, investors had to worry about maintaining and sustaining their previous investments, so the number of new buyouts decreased considerably. After this major crisis LBOs stabilised again.

The *final period*, which constitutes the object of study in this paper, goes from late 2019 to the present. The year 2020 was a turning point for two relevant circumstances that coincided in time, the pandemic caused by Covid-19 and the entry into force of Brexit (The 1$^{st}$ of February 2020). Both had a noticeable influence in the world economy. Such was their potential impact in this country that we have considered the use of the term PanBrexit.

**PanBrexit** = Covid-19 Pandemic + Brexit

By the end of 2019, buyouts by the PE funds had reached record levels of investment activity. KMPG (2022) shows that the UK PE Buyout Enterprise Value/ EBITDA multiple in 2019 was 11 times, implying that the companies were potentially overvalued. Jowett (2021) argue "The US controlled the highest inward FDI stock in the UK on an immediate (£381.6 billion) and ultimate (£562.4 billion) basis in 2019". This bullish trend was expected to continue during 2020, but the onset of PanBrexit gave rise to a very different scenario. In the first half of this year many companies had to readapt, restructure again or even close, as it appears on Figure 3.

**Figure 3**. Total UK PE Quarterly deal volume and value (£bn).




Source: KPMG. (2022, February). *UK Mid-market PE review. Perspectives on Private Equity activity in 2021*. Pitchbook.

**Figure 4.** FTSE 100

Source: London Stock Exchange. (2022). *FTSE overview*.

https://www.londonstockexchange.com/indices/ftse-100

In the early 2020s, because of the PanBrexit the London stock market fell to record levels, as shown in Figure 4. Investors were waiting to see how the different companies would act and what the upcoming effects of the PanBrexit would be. In the second half of 2020, as the economic activity started to pick up again, American PE funds took advantage of the weakness and uncertainty that the pandemic had caused in companies. These funds had a large volume of dry powder, (the funds available for the general partners for investing (Malik, Sharma, & Kaur, 2020)) unable to be used in the first half of the year.

## 3. THE PANBREXIT UK SCENARIO AND THE INTEREST OF US PE FUNDS

As mentioned before, the UK has always been an attractive market for PE buyouts because of its characteristics and relevance. In the last two years, the UK economy has undergone noticeable changes that have ended in a singular scenario never lived before by an EU economy. This particular scenario, that we identify as PanBrexit, for being the conjunction of both the Covid-19 pandemic and the execution of Brexit has meant a worldwide economic change, in which the UK has been one of the most affected countries (Fernandes, 2020). On the other hand, the Brexit decision, which came into place during this pandemic on the 1 of February 2020, has had direct consequences for this country, creating a bearish situation which have undoubtedly influenced the investors' perception about future business expectations. Paradoxically, the PanBrexit

scenario has significantly encouraged the interest of the US PE funds on the UK market of target companies.

### 3.1 Pandemic

The pandemic was a watershed event for PE funds globally and in the UK. The Covid-19 pandemic which started in early 2020, brought about an economic slowdown that affected every industry. This also influenced the investment levels of PE funds. In the first months of the pandemic, PE focused on saving the investments they made as far as they had to renegotiating with suppliers and rent. In the second half of the year, PE took advantage of the chances that this bearish situation could bring to them, and therefore, this volume of activity increased at the end of 2020, when the data was even higher than at the beginning of this economic and global crisis.

The pandemic created a difficulty for companies to earn revenues, having problems with their liquidity to meet their debts. This led to market volatility and lower company prices, which was an opportunity for PE funds to acquire companies for less than they could have before the pandemic. This is not new, as PE has always been known to take advantage of crises and change (Arundele & Manson, 2020). Private equity took this opportunity to pay their attention back to sourcing and executing new investment opportunities, as they found themselves in a situation where there were companies in need of funding, guidance, and direction during this crisis.

During the early months of the pandemic, when the value of companies declined, both PE funds and other investors had a “bullish view” of the market and therefore, under these conditions, holding an asset for some time was expected to generate high returns. PE is characterised by its ability to engage in financial management under conditions of high liquidity, low-interest rates, and rising stock markets (Morgan, 2009).

Private equity would certainly not invest in these companies without the expectation that they recovered and make a profit when they sell them at a later date. American PE funds are the ones that are taking the greatest advantage of this opportunity. As Arundele & Manson (2020) argue, investors, especially US private equity groups, are taking a bullish view and are making aggressive deals during the crisis to take advantage of lower

valuations. It is worth noting that, as in previous economic crises, the UK is one of the countries that tends to recover most quickly by lowering taxes etc. (Jolly, 2021).

### 3.2 Brexit

There were several changes that UK experienced due to the separation from the European Union through Brexit.

One relevant factor during Brexit was the decrease of interest rates. This generates a perfect environment for PE as they have traditionally relied on borrowing to fund their deals. Moreover, the British pound was more volatile against other currencies during that period. The separation of the EU also affected UK companies, as they had relied heavily on trade or labour exchange with the European Union. This situation brought difficulties when developing the different treatments of Brexit. The enterprises that rely heavily on international revenues will get a boost, while those that sell domestically but import most of their supplies will get squeezed. Korczak & Korczak (2019) agree that among those companies involved, the high-growth firms were the most affected ones by Brexit. According to Moxon, Schneider, & Morel (2016), companies in the United Kingdom were put under stress because of those economic factors. In this bearish situation, companies needed to finance themselves due to the economic situation they were suffering. As the number of financial institutions decreased, UK companies started to look for financing in PE funds in order to survive. Remarkably, both before and after Brexit, the city of London had large numbers of international banks and investors who actively participate in PE funds by collaborating with the leverage. These banks were able to organize their loans necessary for the elevated levels of leverage acquired by PE funds (Morgan, 2009). The last and probably the most relevant factor that undoubtedly attracted investors is the lack of control. Before Brexit, UK investors were protected under the EU law, which forbids or regulate the different discriminatory behaviour that governments or companies could do. This situation changed with Brexit, as now any kind of investment within the United Kingdom has a significant reduction in legal protection against discriminatory practices such as expropriation without compensation, restrictions on the transfer of capital or lack of due process (Burgess, et, al., 2021). PE funds took clear advantage of this situation of the reduction in legal protection. All these Brexit consequences, just explained above, caused the price of British companies to fall,

which was an attraction for investors. Most of them, as mentioned before, are American as they accumulated lot of dry powder and they also consider that UK has similar regulation and culture to the US and is more receptive to PE transactions than other European countries (Private Equity Wire, 2022). This large amount of investment made by PE funds created a concern that was encouraged by the bad reputation of the American PE funds (ITUC, 2007). The reasoning behind this is explained in the next section.

# 4. THE BRITISH REACTION TO THE RISE OF PRIVATE EQUITY INVESTMENT DURING PANBREXIT.

There has always been opposition to buyouts. As their importance increased in the UK, so did the concerns about their effects on the target companies. The consequences of the PanBrexit in the UK, and the undervalued situation that companies have been left in, have increased fears about the potential consequences of these massive buyouts.

PE fund's main objective, according to IUF (2007) is to "*extract the maximum cash out of the companies in the quickest amount of time regardless of the long-term impact on output, productivity and profitability*". PE funds perceive target companies as assets and do not consider the employees or the goods and services they produce. The increase in leverage forces a reduction in investment as capital expenditures can no longer meet the interest associated with that leverage. To achieve these high returns and be profitable, they cut costs and make a financial reengineering based on large quantities of debt. This has a direct impact on the working conditions, which change significantly after the buyout. Employees or even the company itself may not be aware of the real performance of private equity and the level of risk they are exposing themselves etc. Employees are affected as they suffer worse working conditions. The most vulnerable ones are the workers, who are pushed into the background without any information or influence and feel very uncertain about their future (ITUC, 2007). They are the ones that suffer the cut in the workforce, the worsening of working conditions and the reduction of benefits. As Morgan (2009) agreed, this is so as they are seen as a variable cost. Companies also suffer many redundancies to save costs. This creates a situation of stress and overload for the workers, who have to cover the same work with less workforce and do not know if they will be the next to be laid off.

Another factor adding to this dissatisfaction is that private equity companies enjoy tax benefits, of doubtful merit. For PE companies, as (ITUC, 2007) agrees, “interest paid on debt are tax-deductible as they are seen as a business expense that allows the enterprise to operate, hire people and invest”. But as was already seen, the company not only does not use the debt to conduct these economic activities that create wealth but also worsens the working conditions. Despite claims that private equity helps improve the target company, the real beneficiaries are PE firms, not even the investors or much less the employees. In addition, PE charge target companies a massive fee for advice or other services, which are often not justified, or property rendered. All these factors leave companies highly vulnerable to external shocks such as changes in commodity prices, rising interest rates, falling sales, etc.

This PE funds effects tend to occur in bullish periods. This is why it could be doubtful if with this bearish PanBrexit situation, UK citizens need to have the same concern.

During this period, the English press was already warning of this massive arrival of US PE funds and of the various concerns. Jolly (2021) argued in "The Guardian" that US PE funds were coming thick and fast and were going after companies of all sizes and sectors. Other newspapers, such as Mayer Brown, argued that the "*UK seen as an attractive market for US firms due to lower valuations and cultural similarities*". The comparatively low market prices in the UK due to PanBrexit also made firms especially attractive (Mayer Brown, 2021). This concern also came as newspapers such as Legal Futures or Evening Standard argued that the US PE funds were only looking out for their profits (Legal Futures, 2021). Furthermore, they said that PE already controlled a large part of corporate Britain and that PE funds "*squeeze the companies for cash rather than invest for the longer term*" (English, 2021).

These concerns are well-founded as leverage buyout companies are characterised by paying a non-justified high price (i.e., usually includes goodwill) and by being financed with high quantities of debt that is assumed by the target company. These circumstances of aggressiveness that involve high risk for the target company and usually occur in bullish periods when the economy is prosperous.

## 5. RESEARCH QUESTIONS

This singular scenario, that combines UK Brexit and the Pandemic, is however a scenario where the market is in a bearish state. Therefore, the aggressiveness of LBOs should be less prevalent. In such unique situation for the UK, it is interesting to analyse to what extent LBOs have reduced this aggressiveness as expected in a bearish period. Thus, the general research question of our study is:

*Have the LBOs executed by US funds during the PanBrexit scenario adapted to a bearish situation or, on the contrary, have they shown the same aggressiveness typical of bullish periods?*

We also raise a number of more specific research questions that will help to concrete whether or not this specific scenario in the UK has affected the way LBOs operate. In the LBOs carried out by US PE funds on the UK target companies within the PanBrexit scenario…

$SRQ_1$ – *Did PE funds overpay for their target companies?*

$SRQ_2$ – *Did PE funds abuse of leverage to finance their deals?*

$SRQ_3$ – *Did LBOs benefit or damage the company's profitability?*

## 6. SAMPLE AND METHODOLOGY

To give an answer to the three SRQs I start by showing the sample collection process and the different kinds of difficulties I faced, which will demonstrate, once again, the lack of transparency typical of the LBO model. Then I analyse their financial statements by calculating financial ratios. For that purpose, I use the Excel workbook developed in Palepu (2019) as a referenced model.

### 6.1 Sample collection. A tedious process.

Creating a sample with a minimum number of cases representative of the circumstance under study is far from an easy process in the case of private equity.

The first step was to find UK companies that were acquired by a US private equity fund in 2020, that is the year of coincidence of the two circumstances leading to the PanBrexit scenario. The first source was the Private Equity Reporting Group 2021 (Private Equity Reporting Group, 2021). The year in which I look at the report is 2021 that publishes the acquisitions for 2020. Since 2008, this yearly report includes a list of the most relevant companies acquired by private equity buyouts in the UK.

To be considered in the sample of private equity buyouts the transactions must meet the following criteria:

1. The target must be headquartered in United Kingdom.
2. A US private equity fund must have acquired a controlling ownership in the UK target company.
3. The PE buyout acquisition must occur in 2020.

After applying the 3 criteria, I obtained an initial list with 38 cases. Once the list was obtained, the next step was to access their published annual reports. This information is available at the Companies House (Companies House, 2022), the UK business register which offers free access to the annual reports of all enterprises (public and private) registered in the UK territory. It is important to notice that in a considerable number of cases, the names through which companies are commonly known do not correspond to their registered legal names, which creates confusion and makes it difficult to identify the appropriate set of accounts to be analysed for the period post-acquisition. In addition, once I had identified the legal name, there were companies in the Companies House with the same or very similar names, so I had to go through different sets of financial statements to identify the correct one for a valid analysis. All this developed a "labyrinth" feeling which again proved the lack of transparency.

Once the actual target company was found, I needed to identify the new vertical corporate structure (that is, the series of newcos that PE funds create above the target for the LBO execution). To compare the situation of the company before and after the buyout, it was necessary to identify the ultimate newco created in UK territory within the acquisition structure above the target. I want to clarify that the newcos are in fact the target company but showing the situation after the takeover. To begin with, for each new company, I had to identify the immediate owner, and so on up to the ultimate newco. This made the process of collecting information particularly challenging and time-consuming. There is a difference between an “immediate” owner and the

"ultimate" one. The first newco created by the investors is called the ultimate newco. This ultimate newco acquires several subsequent newcos, the last of them being the immediate owner of the target company. Private equity funds take advantage of this complex corporate structuring, as in many cases it was difficult or even impossible to keep track of the number and legal names of all companies above the target. In some cases, companies referenced as shareholders were not found in the Companies house, the information was incomplete, or the tax domicile was outside the UK. They also frequently change their legal names which makes the process even harder. After this laborious and time-consuming process, I only managed to accurately reconstruct 5 out of the 38 cases included in the initial list. Even though highly frustrating given the time and effort invested in the process, the inclusion of only 5 cases in the final sample should be seen as a perfect illustration of the lack of transparency and the difficulty in analysing the effects that PE funds have on the acquired companies.

Although the initial objective was to carry out an analysis based on a larger sample, the difficulties found in the sampling process finally prevented me from doing so. This is both, a limitation of the study but at the same time allows for a more detailed analysis of each of the 5 cases.

**Figure 5.** Sampling Process.

| **Sampling process** | |
|---|---|
| PE buyout UK Acquisitions 2020 | 38 |
| Target non-identification | -8 |
| Newcos non-identification | -9 |
| No information of the financial statements | -11 |
| Tax domicile outside UK | -5 |
| **Final sample** | **5** |

Source: Own elaboration

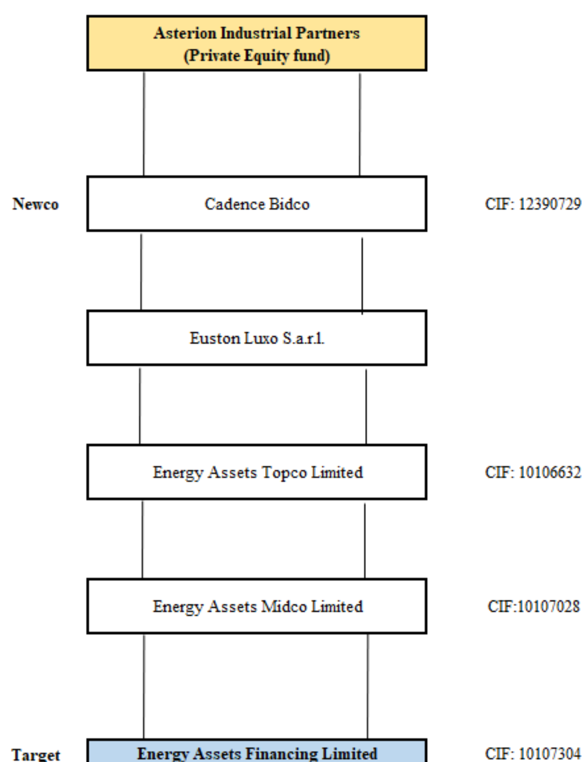
The 5 cases I was able to identify were:

- Citation Limited (CIF: 03560679) acquired by KKR
- Energy Assets Group (CIF: 10107304) acquired by Asterion Industrial Partners
- Rimes Technologies (CIF: 3855448) acquired by RQT Mid Markey Europe
- Rock Rose Energy (CIF: 9665181) acquired by Viaro Energy
- Viridor (CIF: 2456473) acquired by KKR

Once I had identified the sample, I had to obtain the financial statements of the target company and the newco, which I use to conduct the comparative analysis. As all the acquisitions in the sample took place during 2020, for each case I took the consolidated financial statements of the target company for 2018 and 2019 (pre-LBO period). As for the post-LBO period, I selected the consolidated financial statements of the ultimate newco for 2020 and 2021. This selection is made in order to not contaminate the financial statements of the sample, and thus be able to truly demonstrate the acquisition effects.

To better illustrate the process Figure 6 shows the corporate restructuring of Energy Assets post-buyout, which is the second of the 5 cases in the sample. In this case the pre and post buyout comparison is between the consolidated financial statements of what was the target company until the LBO (Energy Assets (CIF: 10107304) and the ultimate UK newco that has the control after the LBO (CIF: 12390729). Post-LBO vertical corporate restructurings of the remaining 4 cases of the sample can be consulted in the Appendix.

**Figure 6.** Corporate restructuring of Energy Assets.




Source: Own elaboration from the annual reports at Companies House

### 6.2 Methodology

To provide an answer to each of the three specific questions, I calculate a series of financial ratios, all taken from the financial statements, and compare the situation pre and post LBO. The ratios represent the different aspects of interest when studying the aggressiveness typical of LBOs. These 3 aspects give answer to our three specific research questions: overpayment, leverage, and value creation.

To observe the variation in overpayment, I focus on the quantity of goodwill that the target company had before and after the LBO. Goodwill to Total assets ratio or the Goodwill to Equity ratio are also used as a proxy for overpayment. In the case of leverage, I focus on the change of debt and a ratio as the Debt to Total Assets ratio are used as proxies. Finally, for observed the value created after de acquisition, proxies such as profitability by using ROE and the different components that make it up are used.

# 7. RESULTS

## 7.1 Results for $SRQ_1$: Overpayment

To provide an answer to my first SRQ, that is, whether there is overpayment in the target companies, I focus on the recognition of goodwill in the accounting for the LBO. Goodwill represents the future economic value expected to achieve. The process used to determine it is subjective, which means that no reliable values can be derived from the valuation (Jerman & Manzin, 2008). I search for this post-LBO goodwill in the consolidated balance sheet of the ultimate newco.

Initially, I would expect that as the UK target companies trade at low prices because of PanBrexit, US PE funds would not overpay for them. However, in Table 1, goodwill increases hugely in all cases. In a bearish period, such as the situation the UK is going through, the suppositions are that as the market prices drop, the increase in goodwill would not be so sharp. Even so, we can see that PE funds in our sample continued to generate large amounts of goodwill, among the prices they paid.

**Table 1**. Goodwill (in millions of £).

| ***Company*** | ***Pre - Target*** | ***Post - Newco*** |
|---|---|---|
| Citation Limited | 5.18 | 159.95 |
| Energy Asset | 44.07 | 224.27 |
| Rimes Technologies | 0 | 160.48 |
| Rock Rose Energy | 0 | 99.21 |
| Viridor Limited | 3.30 | 1.13 |

Source: Own elaboration from the annual reports at Companies House

One of the reasons why companies are willing to overpay might have to do with the previously mentioned dry powder. On the first period of 2020, investors, due to the PanBrexit situation had a lot of uninvested cash (dry powder) that they needed to allocate and move. This need arose because part of how PE funds work is to invest and

sell, in other words, to move money in a short term. If the money does not move, it can lead to large losses for these investors. PE funds pay high prices for the target companies through goodwill.

Goodwill can be seen as beneficial for the company, as they are betting that the value of the company will increase after the acquisition. However, being so subjective, goodwill is in fact a double-edged sword. If the value of goodwill does not correspond to reality and in the end turns out to be significantly lower, it will affect both the economic value of the company and its book-based equity. If the goodwill does not match the stipulated value, the company would end up recording a goodwill impairment, thus seriously penalizing its equity.

In Tables 2 and 3 I use the value of goodwill for the creation of ratios that measure this risk. The first ratio I use as a proxy for overpayment is Goodwill to Total assets ratio. This ratio measures the percentage of goodwill among its total assets. It is a measure of "risk assets", that is, the probability that part of the assets do not have the expected value and might end up in the recognition of a loss. Table 2 shows how it increases in all cases, except for Energy Assets where decreases a bit.

**Table 2.** Goodwill to Total Assets ratio.

| | ***Goodwill / Total assets Ratio*** | |
|---|---|---|
| ***Company*** | **Pre - Target** | **Post - Newco** |
| Citation Limited | 0.02 | 0.71 |
| Energy Asset | 0.09 | 0.31 |
| Rimes Technologies | 0 | 0.36 |
| Rock Rose Energy | 0 | 0.11 |
| Viridor Limited | 0.13 | 0.23 |

Source: Own elaboration from the annual reports at Companies House

To see the effect that a potential future impairment of goodwill might have on equity, I use the Goodwill to Equity ratio. This ratio measures to what extent equity would be prepared to withstand a write-down of goodwill without positioning the company in a high bankruptcy risk.

**Table 3.** Goodwill to Equity ratio.

| | ***Goodwill / Equity Ratio*** | |
|---|---|---|
| ***Company*** | **Pre - Target** | **Post - Newco** |
| Citation Limited | 0.09 | -2.19 |
| Energy Asset | 0.23 | 0.59 |
| Rimes Technologies | 0.35 | -0.11 |
| Rock Rose Energy | 0 | 11.51 |
| Viridor Limited | 0.48 | 0.92 |

Source: Own elaboration from the annual reports at Companies House

In the case of Citation Limited, before the acquisition the equity of the target would have lost only a 9 per cent. After the buyout, the value is negative (-2.19) which implies that even before the contribution of goodwill the company had a negative equity. A similar pattern is repeated in the Rimes Technologies case where the value of the target ratio went down from zero to -5.11 after the acquisition.

In both cases, the negative value of the ratio shows that the accumulated losses are higher than the rest of the items that make up equity (share capital and reserves). These cases are alarming as the value of the goodwill increased greatly but at the same time the value of the company's equity decreased to large negative values even without the need to write-down the goodwill. Having this negative value can lead to the dissolution of the company.

In the cases of Energy Assets and of Viridor, the values of the ratio increase after the buyout in 37 and 44 percentage points, respectively (from 0.23 to 0.59 and 0.48 to 0.92). This leaves the company in a very delicate situation since such a subjective value

of goodwill might bring out large losses in the future. The case of Rock Rose Energy is even more alarming. The company did not have any goodwill in its balance sheet before the buyout and the value of equity was relatively high. After the buyout, the company showed an extremely high value of goodwill and the equity of the company decreased to a ridiculous value compared to the previous one. As a result, the value of goodwill was 11.51 times that equity.

Tables 2 and 3 have provided an answer to the first specific question. Despite the bearish character of PanBrexit, US PE funds practiced overpayment either because they were betting that the UK market would recover easily once it was over or because they were forced to make use of their dry powder. The ratios also demonstrate how, in all acquisitions, a large amount of goodwill contributed by the PE fund puts the equity and the company's value at high risk.

### 7.2 Results for $SRQ_2$: High leverage

The second specific question refers to the extent to which PE funds abuse of leverage to finance their LBOs. To identify this, the amount of debt pre and post LBO is initially analysed and subsequently used to compare two financial ratios.

In a bullish situation, LBOs are characterised by an incredible increase in the target's debt once the acquisition takes place. PE funds usually pass the LBO debt on to the books of the acquired company, which leaves such companies in a complicated situation. Post-buyout, the target company has to reduce costs in order to be able to continue their economic activity considering the large amount of debt that now they held. In addition, this position is of high risk as if any unforeseen event arises (e.g., an industry or economic disruption), it would not be able to face its lack of liquidity.

Table 4 shows how, in this PanBrexit scenario there is a substantial change in the amount of debt after a buyout acquisition (Table 4).

**Table 4.** Debt variation in millions of pounds.

| *Company* | *Pre - Target* | *Post - Newco* |
|---|---|---|
| Citation Limited | 172.67 | 297.45 |
| Energy Asset | 290.16 | 347.40 |
| Rimes Technologies | 5.18 | 473.45 |
| Rock Rose Energy | 1.33 | 0.87 |
| Viridor Limited | 1.81 | 3.60 |

Source: Own elaboration from the annual reports at Companies House

The table shows a large variation in the companies' debt before and after the buyout. There are very outstanding cases such as Citation Limited or Viridor Limited, where the debt has varied from the pre-LBO to the post-LBO year 70%. The Rimes Technologies case has the greatest variation as the debt of the target company increases by 91.4 times (473,45/5,18), making it very dangerous for the company. This variation indicates that the company may be dedicating a high percentage of its operating margin to face its interest expenses and a lot of its cash flows to service the debt. It might lead to bankruptcy if the company is unable to meet such payments.

I also present values for the Debt to Total assets ratio (Table 5), which indicates the percentage of assets financed through debt. In most cases, this ratio increases after the LBO, which increases the degree of leverage and financial risk. The Citation Limited and Rimes Technologies cases are especially serious, as the ratio after the acquisition took a value above 1, indicating that the company is in a situation where all of its capital structure was debt, and the equity was negative.

**Table 5**. Debt to Total Assets ratio.

| | ***Debt / Total assets Ratio*** | |
|---|---|---|
| ***Company*** | **Pre - Target** | **Post - Newco** |
| Citation Limited | 0.76 | 1.32 |
| Energy Asset | 0.60 | 0.49 |
| Rimes Technologies | 0.25 | 1.07 |
| Rock Rose Energy | 0.89 | 0.99 |
| Viridor Limited | 0.72 | 0.74 |

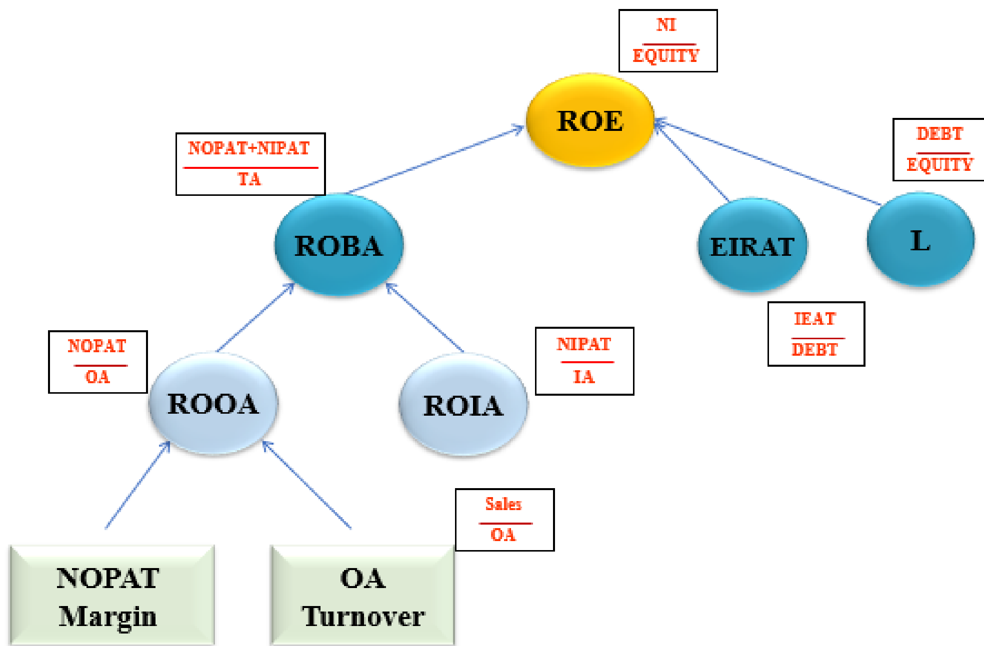
Source: Own elaboration from the annual reports at Companies House

With all these data, I can deduce that LBOs are not acting according to a bearish situation, quite the contrary. In this particular situation, where the market is bearish, LBOs are making use of an aggressive amount of debt, which leaves the acquired companies in a delicate situation.

### 7.3 Results for $SQR_3$: Value creation

To answer the last of the three specific questions, I need to check whether or not LBOs improve the performance and value of the company. To assess the profitability of the companies, that is, if it has managed its resources better under the PE fund ownership, I use the methodology presented in Palepu et, al. (2019).

**Figure 7.** Decomposing Profitability.




Source: Own elaboration. Idea taken from Palepu, et. al., (2019).

To study the profitability of companies, I start by looking at whether ROE has improved or not. Then by disaggregating ROE (Figure 7) I dig into the possible reasons for it.

ROE is the most general ratio as it determines the final level of profitability of a company. This ratio shows the profitability a company generates with the equity invested by its shareholders. That is why this ratio is also known as return on shareholders' equity.

With the data obtained, the variation of the post- and pre-buyout ROE can be seen in Table 6.

**Table 6**. Return on Equity.

| | *Return on Equity* | |
|---|---|---|
| ***Company*** | **Pre - Target** | **Post - Newco** |
| Citation Limited | 0.39 | 0.57* |
| Energy Asset | -0.02 | -0.03 |
| Rimes Technologies | 0.48 | 1.23* |
| Rock Rose Energy | 0.61 | -8.47 |
| Viridor Limited | 0.047 | -0.14 |

Source: Own elaboration from the annual reports at Companies House

* These values are positive because both the numerator and denominator of the fraction are negative.

ROE deteriorates in all 5 cases. The cases of Citation Limited and Rimes Technologies are especially serious and misleading as although the values shown in the table are positive, the value is but a consequence of both components of the ratio (net income and equity) being negative (Foster, 1986). This can lead to an incorrect interpretation of the company's situation. The fact that both net income and equity turn negative after the buyout, represents a very dangerous situation for the company.

The decrease after the buyout may be produce as companies’ management could be reinvesting earnings into unproductive assets. It also generates lower return for investors as it shows how the companies are generating losses. It may be that, in some situations, post-acquisition restructurings or cuts in capital expenditures are taking place, which would explain this result.

ROE provides an initial answer to our third specific question as it shows how the target company's situation is worse after the buyout in all the samples. Furthermore, it reaffirms the idea that PE funds only seek their interests, regardless of the target's sales or profitability. However, it is necessary to dip into what aspect of ROE caused this decline. For that purpose, we start by using the following ROE disaggregation taken from Figure 7.

$$\textbf{ROE} = ROBA + (ROBA - Cost\ of\ debt) \times L$$

As *Financial leverage gain = (ROBA – Cost of debt) x L*, the above formula will also be:

$$\textbf{ROE} = ROBA + Financial\ leverage\ gain$$

Another aspect to analyse is the impact debt has on ROE. Previously we saw how debt has increased aggressively throughout the sample. To see the effect that the increase of debt has on the company's profitability after the buyout, I look at the financial leverage gain ratio. This ratio shows whether the company earns more profit from the borrowed money than the interest paid on the loan.

This ratio appears on Table 9, where in all cases the value of this ratio increases or becomes negative. This is why I will analyse the effects that these two cases have on the target companies.

One of the elements of ROE disaggregation is the Return on Business assets. It measures how much operating profit a company can generate from its assets. As this ratio ignores the capital structure, it measures how efficiently the company uses its economic resources, regardless of the way they have been financed.

Table 7 (left side) shows that ROBA decreases, into even a negative value after the LBO. This indicates that PE fund has caused the company not to use its capital properly.

**Table 7**. Return of assets ratios.

| | ***Return on Business Assets*** | | ***Return on Net Operating Assets*** | |
|---|---|---|---|---|
| ***Company*** | **Pre - Target** | **Post - Newco** | **Pre - Target** | **Post - Newco** |
| Citation Limited | 0.23 | -0.17 | 0.25 | -0.18 |
| Energy Asset | 0.01 | -0.01 | 0.01 | -0.01 |
| Rimes Technologies | 0.35 | -0.11 | 0.41 | -0.11 |
| Rock Rose Energy | 0.13 | -0.45 | 0.17 | -0.50 |
| Viridor Limited | 0.02 | 0.01 | 0.02 | 0.01 |

Source: Own elaboration from the annual reports at Companies House

Table 7 right side shows the Return on Net Operating Assets. This ratio focuses on company's core business, excluding other assets that are no related with its core business (e.g., investment business). It reaffirms the evidence shown in the ROBA as all its values decrease and, in most cases, become negative. We can see how before their acquisition companies had a positive ratio indicating that the companies managed their business efficiently and were profitable in their core business. After the buyouts, the values put the target companies in a risky situation as their main economic activity has worsened and they cannot generate the necessary liquidity to meet their short-term borrowings.

It is also interesting to decompose the RNOA ratio in two multipliers that give relevant information for understanding the evolution. RNOA can be disaggregated into the Net operating profit margin and the Operating assets turnover. Table 8 presents the evolution of these two variables pre and post the buyout.

**RNOA** = Net Operating Profit Margin x Operating Asset Turnover

**Table 8.** Return on Net Operating Assets disaggregation.

| | ***Return on Net Operating Assets*** | | | |
|---|---|---|---|---|
| | **Net operating profit margin** | | **Operating asset turnover** | |
| ***Company*** | **Pre - Target** | **Post - Newco** | **Pre - Target** | **Post - Newco** |
| Citation Limited | 0.11 | -0.41 | 2.16 | 0.43 |
| Energy Asset | 0.06 | -0.07 | 0.22 | 0.12 |
| Rimes Technologies | 0.23 | -0.69 | 1.83 | 0.16 |
| Rock Rose Energy | 0.37 | -1.30 | 0.44 | 0.38 |
| Viridor Limited | 18.61 | 1.58 | 0 | 0.01 |

Source: Own elaboration from the annual reports at Companies House

Net operating profit margin indicates the profit that a company makes on each monetary unit of sales after deducting its operating costs (both variable and fixed) but before paying interest or taxes. Table 8 shows that in all cases, profit margin falls significantly, reaching in 4 of the 5 cases a negative value. This indicates that the

company does not manage its resources appropriately in order to obtain as profit, something that was already demonstrated in the Return on business assets. This can be seen as a consequence of the worsening working conditions and not paying attention to the core business.

The second multiple is operating assets turnover. It is also relevant as it indicates how efficiently the company is using its operating assets to generate sales. In most cases, the values of ratio go down significantly. This reinforces the previous argument that after the buyout both the sales and profitability of the company decrease, thus showing a lack of interest of PE in yielding their funds out of the main economic activity of the target.

At first glance, there was an increase in asset size after the buyout. However, by using these ratios we see that this increase in assets does not bring a similar increase in sales and then in the profitability of these assets. Total assets increase mostly because of the increase in goodwill, not because of the company's new investments, as it has been shown. Therefore, the answer to the third specific question is that the PE fund is damaging the target company's profitability.

Another variable that composes the ROE is the financial leverage gain. Table 9 shows the existing variation comparing the target company before and after the LBO.

**Table 9.** Financial Leverage Gain Variation.

| | ***Financial Leverage Gain*** | |
|---|---|---|
| ***Company*** | **Pre - Target** | **Post - Newco** |
| Citation Limited | 0.16 | 0.74* |
| Energy Asset | -0.04 | -0.03 |
| Rimes Technologies | 0 | 1.34* |
| Rock Rose Energy | 0.74 | -8.92 |
| Viridor Limited | 0.062 | -0.12 |

Source: Own elaboration from the annual reports at Companies House

* These values are positive because both the numerator and denominator of the fraction are negative.

In all 5 cases the financial leverage gain worsens. On companies such as Citation Limited or Rimes Technologies, are the values of most concern. Although the value can be seen as positive, in these cases, the misleading is repeated. The Financial Leverage Gain formula also has a negative denominator (a negative value of equity), which leads to an incorrect interpretation of the company's situation. The values of these two cases, indicate that the cost of debt is higher than the ROBA and that the company's equity is also negative.

In the rest of the sample cases, after the buyout, the value of the financial leverage gain becomes negative. Negative spread occurs when a company's cost of debt is higher than the profits it earns by using that debt in its operations. This may lead to a risky situation, in which the target company end up suffering to pay off the debt. The consequences of it creates a major impact on the workers, as working conditions might reduce costs. The PE fund does not care about this unsustainable situation as long as it continues to make a return on investment. It is, therefore, a situation that clearly shows how the target ends up drowning in debt after the buyout and the profitability of the company drops.

After answering the three specific research questions, it can be concluded that during this bearish period the UK was experiencing due to the PanBrexit, LBOs reacted as if it was a bullish scenario. As a result, the sample acquisitions have shown the same aggressiveness in terms of overpayment and debt that characterises PE funds in bullish periods.

## 8. CONCLUSIONS

The present project has attempted to study the behaviour of the LBOs in the very specific period caused by the conjunction of Covid-19 Pandemic and Brexit in UK, that has been identified as PanBrexit.

Throughout the project a set of aspects have been contemplated: the evolution of the PE fund in the UK (more specifically LBO investments), the consequences of the PanBrexit for UK, the interest in US PE funds in this extraordinary situation, the English media reaction to these events, among others. Nevertheless, the main research question of the Project was to find out if LBOs executed during the PanBrexit scenario behave as in a bearish situation or, on the contrary, with the same aggressiveness typical of bullish periods. To answer this question, different aspects such as overpayment, leverage or value creation have been analysed using financial data from the sample obtained.

The results are quite clear. During this peculiar situation, LBOs have continued to act as if the scenario was that of a bullish period. This is because in all the cases studied, high overpayment (mostly in the form of goodwill), as well as an excessive increase in debt and a decrease in profitability predominated. It could be concluded that the concern of the UK media is justified as US PE funds acted with the aggressiveness that characterises them in bullish periods.

This study is not without its limitations. One of the major limitations has been the great lack of transparency on the part of PE funds, which has severely limited the study sample. The main objective was to analyse more companies, in order to apply a sample methodology. However, the sample obtained was reduced to five cases. Another limitation was that as PanBrexit is a relatively recent situation, my study has been limited to comparing the period from 2018 to 2021, as the balance sheets for periods beyond 2021 were not yet available. This means that the view is not entirely objective as there is not enough time to see the evolution of this type of investment.

## 9. REFERENCES


Arundale, K., & Mason, C. (2020). *Private equity and venture capital: Riding the COVID-19 crisis.*

Belyakov, A. (2020). Economics of Leveraged Buyouts: Theory and Evidence from the UK Private Equity Industry. *Jacobs Levy Equity Management Center for Quantitative Financial Research Paper*.

Burgess, G. P., McIver, T., Young, J., Lyon, B., Anderson, K., Blaxill, D., Power, K., Troina, E., & Paradeisiadis, Y. (2021). *Post-Brexit M&A in the UK and Europe*. Debevoise & Plimpton. https://www.debevoise.com/insights/publications/2021/02/post-brexit-m-a-in-the-uk-and-europe

British Private Equity & Venture Capital Association. (2019). *BVCA Report on Invesment Activity 2019*.

British Private Equity & Venture Capital Association. (2020). *BVCA Report on Invesment Activity 2020*.

Companies House. (2022). GOV.UK. https://www.gov.uk/government/organisations/companies-house

English, S. (2021, 27 May). *US private equity continues march on the UK with £1 billion of deals. Evening Standard*. https://www.standard.co.uk/business/us-private-equity-continues-march-on-the-uk-with-ps1-billion-of-deals-b937529.html

Erturk, I., Froud, J., Johal, S., Leaver, A., & Williams, K. (2010). Ownership matters: Private equity and the political division of ownership. *Organization*, *17*(5), 543-561.

Fernandes, N. (2020). *Economic effects of coronavirus outbreak (COVID-19) on the world economy.*

Foster, G. (1986). *Financial Statement Analysis*. Prentice-Hall International. New Jersey.

Guidelines Monitoring Group. (2011). *Private Equity Monitoring Group on Transparency and Disclosure*.

Hill, P., A. Korczak, and P. Korczak (2019). '*Political uncertainty exposure of individual companies: the case of the Brexit referendum*,' Journal of Banking & Finance,100, pp. 58–76.

InvestEurope. (2021). *Investing in Europe: Private Equity Activity H1 2021*.

ITUC. (2007). *Where the house always wins: Private equity, hedge funds and the new casino capitalism.*

IUF. (2007). *A workers' guide to private equity buyouts*.

Jerman, M., & Manzin, M. (2008). Accounting Treatment of Goodwill in IFRS and US GAAP. *Organizacija*.

Jolly, J. (2021). *Private equity buying spree hits new record as British firms targeted*. The Guardian. https://www.theguardian.com/business/2021/jul/09/morrisons-private-equity-buying-spree-hits-new-record-as-british-firms-targeted

Jolly, J. (2021, June 22). *Why cash-rich private equity firms scent bargains in the UK. The Guardian*. https://www.theguardian.com/business/2021/jun/22/why-cash-rich-private-equity-firms-scent-bargains-in-the-uk

Jowett, A. (2021, 19 July). *Foreign direct investment by ultimate controlling economy, UK trends and analysis - Office for National Statistics*. Office for National Statistics. https://www.ons.gov.uk/economy/nationalaccounts/balanceofpayments/articles/ukforeigndirectinvestmenttrendsandanalysis/july2021

Kieso, Donald E., Warfield, Terry D., Weigandt, Jerry J. (2018). *Intermediate accounting: ifrs edition 3rd ed.* (3rd). New Jersey: John Wiley & Sons.

KPMG. (2022, February). *UK Mid-market PE review. Perspectives on Private Equity activity in 2021*. Pitchbook.

Legal Futures. (2021, 18 November). US private equity funds "*will buy large UK law firms next year".* https://www.legalfutures.co.uk/latest-news/us-private-equity-funds-will-buy-large-uk-law-firms-next-year

London Stock Exchange. (2022). *FTSE overview*. https://www.londonstockexchange.com/indices/ftse-100

Malik, K., Sharma, S., & Kaur, M. (2020). COVID-19 and the Indian Private Equity Industry: time to use the dry powder. *Vision*, *24*(3), 255-259.

Mayer Brown. (2021, 23 August). US buyouts of British Businesses jumps 75 percent in past year | News | Mayer Brown. https://www.mayerbrown.com/en/news/2021/08/us-buyouts-of-british-businesses-jumps-75-percent-in-past-year

Montgomerie, J. (2008). Labour and the Locusts: Private Equity's Impact on the Economy and the Labour Market. In *Conference Report pf the Seventh British-German Trades Union Forum*.

Morgan, G. (2009). Private equity in the UK context. *Transfer: European Review of Labour and Research*, *15*(2), 209–227.

Moxon, C., Schneider, A., & Morel, P. (2016). *Why Brexit offers opportunities for Private Equity*.

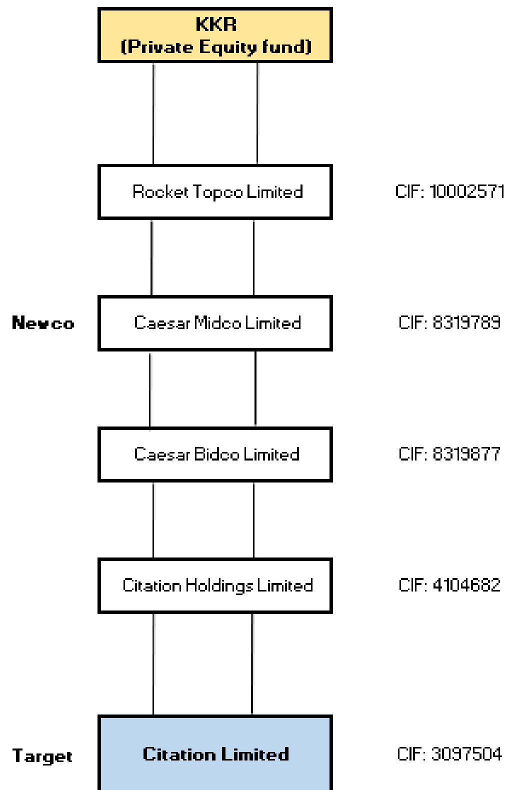
Palepu, K. G., Healy, P. M., & Peek, E. (2019). *Business analysis and valuation: IFRS edition*. Cengage learning.

Private Equity Reporting Group. (2021). PERG. https://www.privateequityreportinggroup.co.uk/

Private Equity Wire. (2022, 3 march). *Number of British businesses acquired by US private equity firms jumps 57 per cent as US houses look to UK for value*. https://www.privateequitywire.co.uk/2021/08/23/305227/number-british-businesses-acquired-us-private-equity-firms-jumps-57-cent-us#:%7E:text=US%20PE%20firms%20consider%20the,such%20as%20France%20and%20Germany.

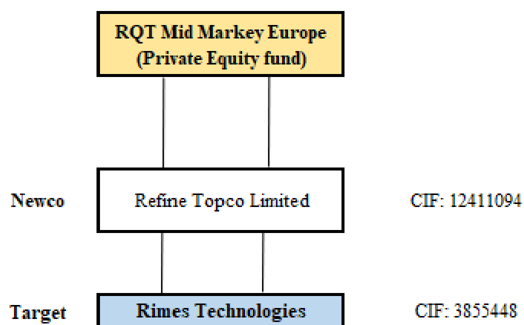
## 10. APPENDIX

**Annex 1.** Corporate restructuring of Citation Limited.



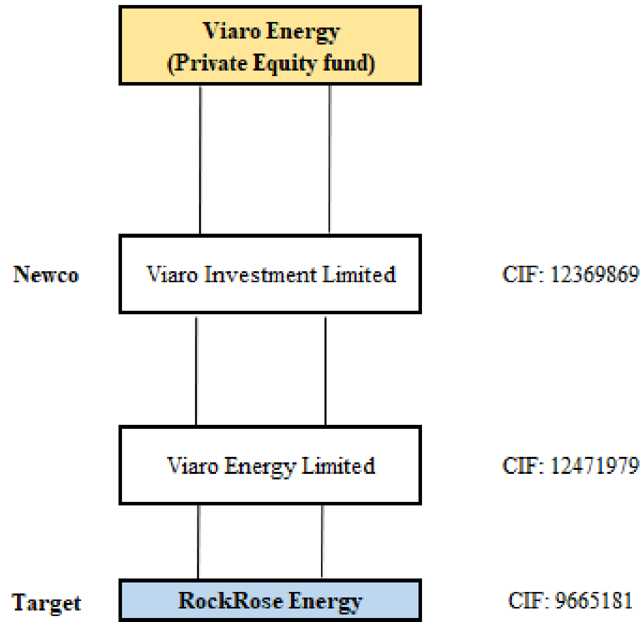

Source: Own elaboration from the annual reports at Companies House

**Annex 2.** Corporate restructuring of Rimes Technologies.



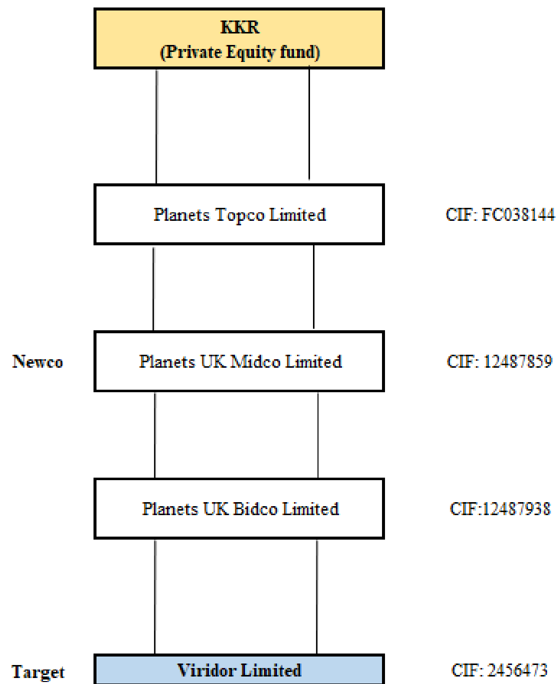

Source: Own elaboration from the annual reports at Companies House

**Annex 3.** Corporate restructuring of RockRose Energy.




Source: Own elaboration from the annual reports at Companies House

**Annex 4.** Corporate restructuring of Viridor Limited.




Source: Own elaboration from the annual reports at Companies House