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INVESTMENT THESIS PAPER – ENVITEC BIOGAS LBO

RETURNS AND EXIT

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Abstract

This paper is an Investment Thesis report about a hypothetical leveraged buyout of EnviTec Biogas AG, a biogas plant operator and constructor from Germany. The deal is promising due to EnviTec's unique business model in an auspicious biogas market. The investment thesis is defined by internationalisation, a buy-and-build strategy, including two add-ons and organic growth. The LBO is valued with a 9.8x EBITDA multiple leading to an enterprise value of €436.9M, of which €250M is financed with three debt tranches. Further, the paper comprises an in-depth analysis and explanation of the returns and the exit scenarios.

Keywords (Private Equity, Leveraged Buyout, Financial Modeling, Corporate Valuation, Return Analysis, Renewable Energy, Biomass)

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1 Summary of EnviTec LBO

1.1 Introduction

This paper is an investment thesis about a Leveraged-Buy-Out (LBO) of EnviTec Biogas AG (from now on referred to as EnviTec). Besides a short phone call with the Chief Operating Officer (COO) of EnviTec about developments in the biogas market and the company, research was done based on public information. Furthermore, the report is written prior to any negotiations in an M&A process. EnviTec is a convincing target because it shows stable financial development in the past without having any significant impact of a recent crisis. In addition, the biogas market is predicted to show a positive trend and good growth in the future, where EnviTec can further expand its market leadership. Lastly, it is essential that EnviTec has already started to expand internationally, and possible add-on targets could be detected.

1.2 Company Overview

Founded in 2002 by Olaf von Lehmden, Kunibert Ruhe and Tobias Schulz, EnviTec is one of the leading manufacturers and operators of biogas and biomethane plants. As a full-service biogas supplier EnviTec covers the entire value chain of biogas production. The company provides whole plant and operational management and on-demand biological and technical services. Additionally, EnviTec also operates its own plants. It operates through three business segments: own plant operation (57% of revenue), plant construction (27% of revenue), and services (16% of revenue). EnviTec is active in 16 countries across Europe, Asia, and North America. Their headquarters are located in Lohne, Germany. Co-founder and CEO Olaf von Lehmden, CFO Jörg Fischer, and CTO Jürgen Tenbrink form the executive board, which has been in charge since 2010. The latter two joined the company in 2007 and 2002, respectively. The company currently has 518 employees, among which the majority – 402–work in Germany. In terms of business segments, most employees work in the service segment (166), followed by the own plant operation segment with 163. The plant operation segment has 139 employees.

Since 2007, EnviTec has been listed on the stock exchange after issuing 30% of its shares at the IPO (EnviTec Biogas AG 2021).

EnviTecs business is divided into three segments. EnviTecs own plants are operated in cooperation with local partners from the agricultural or energy sectors. These provide the sites, procure the feedstock materials, and take control of the factories' day-to-day operations. The partnering farmers offer the input of livestock waste, food waste or crops. EnviTec, on the opposite, executes the required maintenance work, offers biological and technical services, and handles commercial management. The generated electricity, heat, and gas in EnviTec's national and international plants are subsequently marketed to utilities.

In addition to operating plants, EnviTec also plans, manufactures, and installs plants ready for production. The company's product portfolio covers the complete value chain of biogas plant engineering for plants from 75kW onwards. EnviTec offers three different types of plants: EnviFarm Classic, EnviFarm Compact, and EnviThan. The raw materials required for the construction of the biogas and biomethane plants are provided by external suppliers. Afterwards, biogas and biomethane plants are marketed towards farmers, industrial enterprises, and energy providers.

Finally, the service segment offers all operations-related services for biogas plants to existing or third-party customers. The company's experts take care of the plant's start-up and the permanent biological processes' monitoring. EnviTec's laboratories improve the plant's efficiency by controlling feedstock materials and fermentation residues for the best quality. The range of services also includes regular plant inspections and training of the operators and their employees. In addition, EnviTec offers two types of maintenance services: Partial maintenance services invoiced according to actual expenditure and complete maintenance with the

assumption of the repair cost risk. On request, EnviTec markets electricity, natural biogas, and heat.

1.3 Market Overview

The Market for Energy generated from biomass is highly dynamic and offers strong potential. Historically, the global Bioenergy capacity has constantly been growing with a CAGR of 7.2% from 2009 to 2021 (IRENA 2022). In detail, the energy capacity generated from biomass grew from 62 gigawatts in 2009 to 143 gigawatts in 2021. The constant growth derives from different regions expanding their biomass energy capacity at different times. Generally, Europe, especially Germany, are at the forefront in innovation and development of biogas-related products (EnviTec's primary market). On the other hand, other regions like Asia or the U.S. are driving growth, while markets like Germany are more saturated. The limiting factor is space to supply biomass that can be used in production. In Germany, for example, there is a need for more space to expand the biogas market further. However, with changing regulations favouring biogas products, even saturated markets like Germany should start growing soon. As a result, the global CAGR from 2021 to 2030 is expected to be 7.3%, like the historical growth (Fortune Business Insights, 2021; Research and Markers, 2021; Grand View Research, 2021).

The primary market trend driving not only the biogas market but also the market for renewable energies, in general, is the pressing need for environmental change to reduce global warming and carbon dioxide output. By nature, this is an ongoing issue and will continue to drive market growth. However, the excellent potential for the biogas market can be explained only in combination with other factors. A big part of biogas development is determined by the regulatory environment, which is changing in favour of biogas. The global change in agendas, especially in Europe, stems from the macroeconomic developments since the war between Russia and Ukraine broke out. The biogas industry is profiting from recent changes due to its most significant feature; energy from biomass can be saved in the form of gas or fuel. This is a

significant advantage compared to other renewable energies. Further, the need for gas and fuels that can replace fossil fuels and natural gas has grown immensely since the start of the Ukraine war due to the high dependency on Russian gas. Therefore, Germany decided to lift the biogas cap, supporting the usage of more biogas-related products and shifting to a renewable energy strategy, including biogas.

As mentioned earlier, the German market growth stagnated in recent history and did not look promising. Since already 10,000 plants are operated to produce heat, electricity, and biogas. However, recently the main driver is the production of biogas or biofuels. Furthermore, with the macroeconomic changes and the rising need for gas and fuel alternatives, the regulatory environment has changed to support the production of biogas and biofuels. Therefore, growth is expected to increase soon. As a result, the market volume will increase by €1.1B in 2022, which marks roughly a 12% increase (Fachverband Biogas 2022).The market is highly fragmented, and on paper, EnviTec captures a tiny portion of the market, operating 81 plants out of 9,519 in Germany (EnviTec Biogas 2022). However, most plants are operated by farmers or industrial businesses that use their waste products or crops to produce bioenergy, either sustaining themselves or delivering it to their local community. However, EnviTec is the leading player in bioenergy as they operate the most plants and serve the fragmented market by manufacturing plants. Furthermore, they are specialised in biomass and distinguish themselves from other big players.

1.4 Historical Financials

On the income statement, it can be observed that since 2016 the revenue has grown with a CAGR of 10.0%. Even though the average growth is remarkable, the revenue declined in 2018 and 2020 by 6.0% and 10.0%. In 2017 the reason for this was mainly the streamlined structure of the plant construction, which led to a revenue decline of €33.5M (26.5%) in the business unit. Like many other businesses in 2020, EnviTec's performance was negatively impacted by

economic stagnation triggered by the COVID-19 pandemic, leading to a backlog of investments, customers and difficulties in implementing construction projects. In line with the total revenue, each of the three business units has increased over the years. Still, only plant construction can increase its relative share from 19% to 27% due to expansion towards other countries. Operating Costs of EnviTec consist of the cost of goods sold (COGS), Selling, General and Administrative Expenses (SG&A) and Other Operating Income/Expenses (OOI/OOE). Thereof COGS represent the largest share with, on average, 68.0% of the revenue. Even though the relative peak of the COGS was in 2017 and 2019 (both 70.4%), management expects the COGS to be at a peak due to high electricity prices. SG&A and OOI/OOE have remained stable over the years, with an average of 10.8% and 7.1% of revenue. However, the overhead costs have decreased over the years, resulting in 1.3% and 1.5% fewer expenditures in relation to revenue. As a result of the cost development, the EBITDA increased from €22.1M to €37.2M. Concerning the fluctuation in revenue growth, it is remarkable that EnviTec increased its EBITDA constantly in the last eight years, averaging a 14% margin. Despite constant growth in the revenue and profitability level, D&A is continuously decreasing. Concerning revenue, this means a shrinkage from 11% to 6%. The decrease in D&A results from the decreasing PPE position (see balance sheet paragraph). However, this observation improves the operating result (EBIT) even more. Being negative with €17.8M in 2016, the EBIT reaches its peak in 2021 with €21.3M, resulting in an overall improvement of €37.1M in 5 years.

For the balance sheet, there is a clear trend recognisable. On the asset side, it is observable that current assets are increasing over time while non-current assets are strongly declining. The increase in construction and orders strongly drives the growth of the current asset section. Non-Current Assets decreased mainly due to the €34.9M reduction in PPE. The decrease was triggered by the backlog of investments and the D&A exceeding new investments. The decline

on the liability side is driven by the payback of long-term debt (-€17.2M) over the years, exceeding the new debt issuance. The reduction in total Assets and Liabilities is leading to an increased Return on Capital Employed (ROCE), having its peak in 2021 at 14%. One result of the increase in current assets and liabilities is an enormous high Cash Conversion Cycle of 144 days in 2021. Even though it improved since its peak of 209 days in 2016, it is still comparably high towards its competitors (they average 64 days). However, this might not be a sign of a mismatch in demand (see market overview) but rather an opportunity for further operational improvement, which is reflected in the business plan.

On the Cash Flow Statement, the Free Cash Flow (FCF) is mainly determined by the cash flow of operations, as the investment backlog in recent years led to a relatively small cash flow of investments. Only in 2021 investments of €12.9M were made, resulting in a constant positive FCF ranging from €7.3M in 2017 to €31.1M in 2019, with stable positive numbers in all recent years. On the other hand, the cash flow of financing is always negative due to the payback of debt and the dividend distribution of €1 per share in the last three years. Finally, EnviTec increased its Operating Cash Flow compared to revenue from 10% in 2016 towards 14% in 2021.

1.5 Investment Thesis

Creating an investment thesis and identifying possible value drivers is based on derivations of four main pillars. Combining the market development (described above) with EnviTecs business model and competitive advantages, it can be derived that an expected Market CAGR of 7.2% stands for the exceptional growth the market environment is offering (market tailwind). Further, EnviTec specialises in biogas applications, while most competitors only provide biogas as a niche product (exceptional expertise). Moreover, regulations like the 'Biogas-Cap' in Germany will be lifted, and international agreements (Paris Agreement) will further drive growth (regulatory environment). Additionally, constant cash flows indicate a stable and

reliable target (strong and steady financials). The analysis of those statements for the business segments plant operation and plant constructions results in three main drivers on which value creation is based: Internationalisation, 'buy & build' and organic growth. The service business unit is neglected because its growth is mainly derived from plant construction. High market fragmentation, excellent cost efficacy, and high competitive edge identify own plant operation as the main growth driver. Therefore, EnviTec is in a prime position to use its expertise in other markets. This could result in gaining market share in high-growth markets with lower saturation, such as Asia and especially the U.S.. However, with changing regulations in Germany and more plants falling out of subsidies in 2025, EnviTec is set to grow organically in Germany and surrounding tapped markets, such as France or Denmark. By opening or acquiring new plants, EnviTec can expand its portfolio and integrate those into its existing portfolio. For plant construction, buy & build is the best value driver. As a benefit, EnviTec could capture revenue, client connections and market share by not only entering into high-growth markets (Asia and the U.S.) but also gaining market share in less saturated markets in Europe. The analysis of the growth opportunity of internationalisation points out the strong potential not tapped in other continents. For example, Asia only supplies 35% of global biogas, indicating the market's enormous potential and especially keeping in mind that South and East Asia are producing 40% of the world's municipal solid waste, which is the raw material for biogas plants. The North American Market is just at the start of its development and, therefore, an attractive target for an internationalisation strategy. The American Biogas Council estimates over 15,000 potential biogas facilities in action, leading to a CAGR of 23% in the U.S.. However, especially the Biogas Production (non-electricity projects) grew with a CAGR of 43%, leaving space for EnviTec to grow. The growth opportunity of buy & build assumes that EnviTec will acquire two add-ons during the holding period. Screening possible add-ons, Scandinavian Biogas Fuels (from now on referred to as Scandinavian) and Clover Power PLC

(from now on referred to as Clover) convinced as the best add-ons. The first is a Stockholm-based constructor and operator of biogas mainly focused on the design and building of plants. Operating primarily in the Nordic Region and South Korea, they managed to earn €38.8M in revenue and an EBITDA of €8.9M. The add-on should help increase revenue and access the Scandinavian market and utilities. Clover is located in Bangkok and specialises in generating and selling electricity. Further, they sell machinery and render construction engineering services. Clover has subsidies in various regions in Southeast Asia, which should help connect Thailand's utilities and access the Australian market. Clover had revenue of €45.6M with an EBITDA of €7.5M in 2021. Both add-ons would meet the aim of internationalisation & knowledge expansion. In terms of organic growth, EnviTec is benefitting from an increasing order backlog which rose from €142.1M in December 2021 to €219.0M in June 2022. However, since regulation has heavily held back new investments in Germany since 2011, the outlook seems promising for biogas plants. Furthermore, operational improvement is affected by high electricity costs, which are expected to decrease COGS in relation to revenue in the forecast period by 2%. Lastly, EnviTec aims to gain a strong position in the bio-fuel market. To be able to produce biofuel, there is a need to upgrade their plants with liquefaction tools to convert biogas into biofuel. For that reason, EnviTec bought the largest biogas-plant-park in Güstrow (start 2023) and purchased additional bio-methane (contracts >€100M) to ensure the bio-methane supply to produce biofuels. As a result, existing plants will successively be converted into bio-LNG-producing plants, which can be seen as a product-mix enhancement.

1.6 Business Plan

The Business Plan for EnviTec must be looked at from multiple perspectives. First, the core business must be evaluated and forecasted, including their three main business lines (Own Plant Operation, Plant Construction and Service). Afterwards, the M&A strategy must be included by forecasting the desired targets and incorporating them into a merged business plan that

illustrates the financial forecast across the board, which will be based on the following valuation and returns. The plant operation business can be forecasted based on the number of operating plants and the revenue generated per plant. EnviTec operates 81 plants in Germany and eight in the rest of Europe. Those yield, on average, a return of €1.7M per plant. Based on these values, different growth rates per region were applied. In Germany and Europe, very conservative growth rates start from 4% in 2022 and move down to 2% in 2027. For international expansion, it is planned to open two plants in Asia and two in the U.S. in 2022, which will grow by 100%, moving down to 30% in 2027. This will lead to 125 plants globally in 2027, yielding a revenue of €211.6M. The plant construction is less detailed, and no particular KPI can be applied to forecast the revenue due to a lack of data. Therefore, the global CAGR of 7.2% is applied, with a downward trend leading to a growth rate of 6% in 2027. This results in a revenue of €102.7M in 2027. The amount of Megawatt (MW) serviced in the Service Segment is applied as a growth factor. Per MW, EnviTec earns historically €0.07M. The segment is divided into Germany and other countries. In Germany, again, a conservative growth rate is applied based on the historical average of 2.6%, while in other regions, more robust growth is assumed from 16% in 2022 to 8% in 2027. This implies a revenue of €58.7M in 2027. Overall, this leads to a growth rate in 2022, in the investment case, of 5.3%. Each segment adjusts all growth rates per case scenario by 3%. Therefore, there is less growth in the bank case and higher in the management case leading to a core revenue of €373.0M in 2027, indicating a CAGR of 5.8%. The costs are held constant over the holding period as a percentage of sales. COGS are subject to a 1% decrease compared to sales in 2025. This is due to the expectation of decreasing utility costs (electricity prices). The SG&A costs are expected to stay constant at 9.8% of revenue. Again, these values vary by 1% negatively or positively in the other cases. Other expenses are expected to remain stable at €14.5M over the holding period. This is resulting in a core EBITDA of €68.1M in 2027. D&A is based on the percentage of PPE

historically and will amount to €21.1M in 2027. The working capital is forecasted based on DPO, DSO, DIO and other current assets and liabilities. Their development is based on 2021 values and is generally expected to decrease towards the mean of the industry average. More effective cash management will likely be applied after the takeover. Other current assets and liabilities are based on their percentage of sales in 2021 and are expected to stay constant over the holding period. This leads to a CCC of 103.3 in 2027, compared to 125.7 in 2021. As a result, working capital is decreasing in relatively small steps of €1M to €2M due to higher efficiency in cash management. CAPEX is mainly based on the spending on machinery, in terms of maintenance CAPEX and is forecasted based on the growth of the machinery park. Therefore, forecasting the asset turnover, which is historically at 1.5, is applied, with the assumption to remain constant at 1.6 as of 2022 (varying by 0.2 per case). As a result, the CAPEX remains relatively stable between €10M and €15M.

The planned internationalisation comes with an M&A Strategy that implies acquiring the two add-ons mentioned earlier (Scandinavian in 2023; Clover in 2024). Revenues are based on historical averages, implying a decreasing growth due to their high growth prospect in recent years. Costs are summed up between SG&A and COGS. They are forecasted based on the historical percentages of sales. However, there is a declining trend built in due to the increasing efficiency after integration. CAPEX, NWC and relevant Balance Sheet items are forecasted similarly to the core forecast. The add-on forecasts vary as well, based on the scenario applied. This leads to additional revenue of €165.1M in 2027 and an additional EBITDA of €46.7M. In Summary, the Business Plan yields a revenue of €518.8M and an EBITDA of €99.0M in 2027 (Bank Case: €465.9M, €81.6M; Management Case: €577.8M, €117.1M)

1.7 Valuation and Capital Structure

The valuation is conducted using intrinsic and relative valuation methods. The DCF implemented the intrinsic valuation with the Gordon-Growth model and the DCF multiple

methods. EV/ EBITDA, EV/ EBIT, EV/Sales and precedent transactions multiples were used for the relative valuation. The derivation of a final valuation is conducted using the EV/EBITDA Multiple, the most common valuation method for Private Equity transactions (Wardowski, Y., 2022). In addition, the DCF methods were not considered, as their valuations were outliers compared to the others. To observe the final multiple of 9.8x, the average of several multiples was used: Precedent Transactions 9.6x, EV/EBITDA LTM 9.2x, EV/EBITDA 10-year average 11.0x, EV/EBITDA LTM 9.2x and EV/Sales 9.1x. With the implied EV/EBITDA multiple of 9.8x and the 2022 EBITDA of €44.8M, EnviTec is valued at an EV of €436.9M. Different debt structures can be applied within the model. The structure used comprises three debt layers. A stretched senior loan of €105M, yielding 5.82% in interest and is amortising by 7.5% each year, a term-b loan of €50M, yielding 6.32% and is repaid as a bullet in 2029 and a term-c loan of €45M, yielding 6.82% in interest and being repaid as a bullet in 2029, totalling €250M in debt. The equity contribution amounts to €222.2M, which is distributed on institutional ordinary shares of €18M, sweet equity of €6M and shareholder loan of €198.2M, which yields a PIK interest of 8%. For the add-on acquisitions, shareholder loans of €48.6M in 2023 are added, while €32.8M in 2023 and €83.8M in 2024 are added as a stretched senior loan.

1.8 Returns and Exit Strategy

The investment in EnviTec is expected to generate a money multiple of 2.47x and an IRR of 20.6% when exiting in 2027, thus completing a 5-year holding period. The exit value is predicted to be €965.9M. When breaking down the exit value into its components as presented in the exit waterfall, the shareholder loans account for €362.7M, net debt for €213.0M, investor shares for €292.7M, and the management shares for €97.6M. Overall, this represents a total value generation of €529M. The EV of €965.9M consists of the EBITDA generated in the last year, 2027, of €99M multiplied with the exit multiple of 9.8x. Since no multiple arbitrages are

assumed, the entry multiple equals the exit multiple. A total of €327.3M remains in the company as debt, consisting of €65.6M stretched senior loan, €75M term loan B, €70M term loan C and €116.6M add-ons. Considering the investors' perspective, the total amount invested is €264.8M, as they hold €216.2M upon entry and add €48.6M in shareholder loans in 2023 for M&A activity. Their IRR is 20.6%, their money multiple is 2.47x, and their proceeds €655.4M. From the management's perspective, the total amount invested equals €6M, the IRR 74.6%, the money multiple 16.30x, and the proceeds €97.6M. Regarding the credit statistics, the cash interest coverage is increasing over the holding period to 3.0x in 2027. One primary driver for the sharp increase is the strong EBIT development and the robust cash conversion, leading to a deleveraging of the stretched senior loan. As a result, Net Debt/EBITDA is decreasing over the investment period to 2.2x, mainly caused by a considerable cash flow generation. Alternatively, the bank case captures less growth in high-potential markets, subsequently causing a less optimal business development. In addition, in this scenario, the M&A targets are developing to a lesser extent after being integrated. In contrast, the management case captures more growth in high-potential markets leading to enhanced business development.

Moreover, the M&A targets are also developing stronger after their integration in this case. The equity at entry equals €222M and reaches €753M at the exit. This increase is comprised of different components. First, the accumulated cash amount in 2027 is equal to €114.3M. After subtracting the initial cash of €25.4M and the transaction cost of €10.0M paid in cash, the net cash produced in the holding period amounts to €71.2M. Even if €39.4m debt is paid-off during the holding period, the debt amount at exit increases by €77M due to the add-ons. In addition, organic growth increased the equity by €154.5M over the holding period. The two add-ons further increase the equity by €251.2M, thus causing the most significant increase.

The margin expansion results from an EBITDA-margin improvement of the core business and the add-ons. Overall, the EBITDA margin improved by 2.9% during the holding period,

including synergy effects. Finally, the multiple arbitrage solely represents a small proportion of the equity growth since it is limited to the arbitrage of Clover. The add-on generates a 0.9x EBITDA (2027) arbitrage, resulting in a €12.2M increase in equity. Each add-on increases the IRR and the money multiple than the case without any transaction. Scandinavia increases the money multiple by 0.06 and IRR by 1.3% due to its higher purchase price linked to its significant asset base, while Clover causes the MM to grow by 0.11 and the IRR by 1.4%. Regarding the exit options, two scenarios appear to be plausible. Either a strategic sale to a large energy company or a secondary buyout to another PE fund.

1.9 Due Diligence

Certain areas related to the business of EnviTec remain ambiguous and therefore require further analysis. For example, insufficient information is provided on the profitability and remaining lifespan of the individual plants, which could result in higher maintenance costs than planned. Furthermore, an in-depth analysis of add-ons is required, as the value creation expected through the acquisition of Clover could be limited due to entry barriers and unrealised synergies. Moreover, a detailed employee analysis must be conducted to reduce workforce inefficiencies, as no employee split currently is available. Finally, regarding the financials, further information on PPE and D&A is necessary to comprehend the past development of both positions better and, more precisely, predict future performance.

Additionally, it is currently impossible to view the profitability of the individual segments due to missing information. As a result, specific segments could be less profitable than assumed, which could alter the strategies applied. Finally, EnviTec is highly dependent on regulations under construction law and pollution control law. Therefore, a deeper insight into the current and future legal situation at a national level is necessary.

2 Returns and Exit

2.1 Performance Metrics

Performance extrapolation is made more difficult by PEs' organisational structure and insulation from public disclosure obligations. One major issue is that there is no entirely objective method to value a PE fund's investments to market other than when an investment is made or exited. This is due to the consistent illiquidity of the shares of their portfolio companies. Inevitably, interim evaluations of the fund's net asset value (NAV) that general partners (GPs) provide to limited partners (LPs) exhibit a certain subjectivity. Additionally, fund NAVs may not take into account any transaction fees the fund may incur if it genuinely attempted to dispose of the underlying investments. As a result, performance measurement based on factor pricing models, which require periodic returns that significantly rely on self-reported NAVs, have been avoided. Instead, it has been standard practice to gauge performance utilising unbiased cash flows between GPs and LPs. In order to measure the fund's performance, the last reported NAV is considered a liquidation dividend for active funds because it is typically believed to be a fair indicator of its true value (Kaplan and Sensoy 2015).

In general, two main metrics are used to gauge the performance in private equity investing, the internal rate of return (IRR) and the multiple of money (MM). While the first measures the total return made by a sponsor on an equity investment, the latter assesses the return on the capital invested. The total return establishes the fund's position in comparison to its peers, or funds of comparable vintage that present commonalities regarding their investment philosophies and operating regions, once the entirety of the investments have been exited and the LPs have been reimbursed their capital deployed (INSEAD 2019).

However, it needs be mentioned that these two metrics only offer a preliminary understanding of how PE funds have effectively performed. Other indicators provide a more in-depth understanding of how a fund has evolved over a period in time. Once different alterations have

been applied, the further indicators present returns that are more in line with the development of publicly traded equities (INSEAD 2019).

Repaying debt and increasing the enterprise value are two ways through which leveraged buyouts (LBOs) produce profits. When considering an unchanged enterprise value at the moment of exit, earnings rise the more the debt ratio increases since it enables higher tax savings through rising interest costs. However, the use of leverage has a negative effect on the risk profile of the portfolio company, thus constraining its financial flexibility, leaving it more vulnerable to potential economic declines (Rosenbaum and Pearl 2020).

2.1.1 Internal Rate of Return

The discount rate applied to cashflows of a sponsor over the course of the investment period to generate a net present value (NPV) of zero is represented by the IRR (Rosenbaum and Pearl 2020). The IRR is considered to be the preferred performance metric in the PE sector. Furthermore, the magnitude, timing, and net asset value of a PE fund's capital inflows and outflows are reflected in the IRR (INSEAD 2019).

Despite being widely accepted, the IRR calculation's underlying assumptions and practical implementation have generated debate. The assumption that cash released to LPs early is being reinvested at the identical IRR as earned at the original exit is one of its primary vulnerabilities. As a result, when an early successful exit creates a substantial IRR, PE funds tend to overestimate the performance of further investments and apply the high obtained IRR to them as well. However, it remains unlikely that future investments will generate comparably strong IRRs. This is especially relevant given the fact that investors are prevented from redeploying cash into different funds during the divestiture period. In addition, GPs are encouraged to rapidly exit their portfolio companies in order to lock in a high IRR early in a fund's existence, as the IRR increases with diminishing holding period. Another flaw of the IRR is that it does

not account for the cost LPs encounter for the retention of uninvested capital, which is a comparable weakness, albeit of lesser importance. Two more issues exist in addition to these vulnerabilities: GPs can use the methodology of their choice to combine different portfolio companies' IRRs in order to obtain an overall fund return, which is the first issue. Comparisons between fund IRRs are challenging due to the missing defined industry standard. Secondly, since the IRR represents an absolute metric, it does not pose its performance in opposition with any benchmark, thus rendering a comparison of private and public equity impossible (INSEAD 2019).

In order to handle the difficulties associated with the capital redeployment presumption in the IRR, the modified IRR (MIRR) was introduced. It presumes that cash outflows are reinvested into the fund on the basis of a more modest expected return like the public market benchmark. In contrast to the conventional IRR model, it additionally takes into consideration the cost of uncalled capital by offering a PE performance indicator that is more precise since it bases the IRR on more reasonable reinvestment and capital cost assumptions. Converting the IRR of an existing portfolio to a MIRR reduces the unsustainable IRRs of over 100% for top funds through early exits to a more manageable range. Simultaneously, funds experiencing early exits with poor performance remain unpenalised. Both strong and weak funds typically exhibit less extreme performance when using the MIRR approach (INSEAD 2019).

2.1.2 Money Multiples

The total value to paid-in ratio (TVPI) indicates the multiple of money invested (MM) of a private equity fund. More specifically, the residual value to paid-in ratio (RVPI) and the distributed to paid-in ratio (DPI) of a fund compose the TVPI (INSEAD 2019). The RVPI symbolises a fraction of the worth of a fund that remains unrealised since this ratio is equal to the value of a fund’s NAV divided by its capital commitment. It stays higher at first because active portfolio companies make up the majority of the fund value. The RVPI will eventually

reach zero as investments are progressively exited. The DPI is calculated by dividing the totality of cash returned to investors by the fund's capital commitments. At the time of valuation, it displays the realised gains produced by its investments. It finally gains popularity when the fund begins exiting investments. As long as the fund has not realised any kind of partial or full exits, the DPI will reach zero (INSEAD 2019).

2.2 Financial Instruments

Managers of PE funds make investments in a variety of financial products. The financial instrument should at the time of exit reflect the value created just prior to the sale. The most frequently used instruments are equity shares, preferred shares, hybrid instruments, warrants and depository receipts (Folus and Boutron 2015).

Equity shares, which are the main financial instrument employed by PE funds, constitute ownership interests with voting rights. In the absence of voting rights, preferred shares often entitle holders to a predetermined dividend and take precedence over common shares in the allocation of assets in the context of a liquidation (Folus and Boutron 2015). Hybrid instruments are securities simultaneously containing debt and equity, that can enable companies to raise funds and investors to attractively extend their asset allocation options (Coyle 2002). Examples of hybrid instruments are bonds that are convertible or can be redeemed or exchanged. Warrants are long-term call options that give the holder the right to buy the underlying share of the issuing company up to or on the date of expiry at a predetermined strike price. Finally, depository receipts represent securities that, like American depository receipts, are emitted by banks in exchange for the underlying shares of foreign companies but are denominated in the investor's local currency (Folus and Boutron 2015).

In addition to these instruments, the PE fund may also use debt securities as leverage, either directly or through its portfolio companies. Bonds, notes or bills, bank and shareholder loans,

or payments of fixed or floating interest rates can serve as debt securities. Different exit options are necessary for the possession or sale of the securities (Folus and Boutron 2015).

2.3 Investor and Management Proceeds

PE fund's different investors receive capital distributions when underlying investments are sold for profits. The minimal rate of return that must be provided to LPs before GPs can begin taking their cut of the profits is known as a private equity preferred return (Covitz and Liang 2002). In order to eliminate GPs who are unsure of their ability to generate high returns and to dissuade GPs from taking unwarranted risks, LPs require preferred returns (Toll 2001). Additionally, preferred returns may lessen GPs' motivations to invest in excessive numbers of expensive ventures when capital is abundant (Covitz and Liang 2002).

The hurdle rate refers to the minimum rates of return that must be attained by external investors before a PE firm's management is eligible for a bonus payment (Breuer 2008).

PE investors usually offer the management teams of their portfolio company significant stock incentives (Gompers et al. 2016). Enhanced firm profitability results in substantially higher wealth gains for managers holding significant equity positions. As a result, managers are more motivated to increase revenues and diminish expenditures in order to enhance the firm's worth (Masulis et al. 2009). Simultaneously, the use of leverage pressures the management to prevent the waste of financial resources (Gompers et al. 2016).

2.4 Exit Options

Trade sales, secondary buyouts, and IPOs are the most common methods of exiting private equity investments (Povaly 2006). These can be executed either fully or partially. When selecting an exit strategy, investors should take into account the different factors. First, they should consider the overall economic environment as well as the current tendency on the stock markets. Furthermore, they should view the relative performance of PE investments in

comparison to other asset classes. Finally, the PE investor's quality and commitments must be considered as well (Folus and Boutron 2015).

2.4.1 Trade Sale

One option for a financial sponsor to capitalise on an investment in one of its portfolio firms is to dispose it to a strategic acquirer. The motive of the latter to engage in the transaction can be of different nature, such as market expansion, patents, synergies, or cutting-edge products. Typically, PE firms do not act as strategic acquirers. The portfolio company may itself take the tole of the acquirer by buying back its own shares from the PE firm. The buyer's holding period of the acquired company is comparably longer as it anticipates an increased industry related market share and thus a superior competitive advantage. In order to increase future operating cash flow from the target, the buyer frequently agrees to pay the value of the strategic options contained in the target price and thus purchase the target for a higher present value. Since the trade sale provides the PE vendor with rapid liquidity, it typically generates the highest sale price. Another benefit of a trade sale is that only one bidder is involved in the negotiations, which makes the process faster and more efficient while avoiding the regulatory constraints that apply to public transactions like an IPO. Due to these factors, selling to a strategic buyer is commonly a PE investor's preferred exit strategy (Folus and Boutron 2015).

Nevertheless, a trade sale also poses potential challenges. For instance, the management of the company could object to the trade sale because they run the risk of being replaced. Moreover, a trade sale puts the portfolio company at danger of having private information leaked during the negotiating stage (Folus and Boutron 2015).

2.4.2 Initial Public Offering

An initial public offering (IPO) represents the process by which a company first emits its shares publicly. From then on, these can be traded on the stock market. A PE firm can exit using this

technique by selling shares of one of its portfolio companies. For PE providers, IPOs represent a common exit route. During a bull market, this approach is likely to allow the vendor to obtain the largest return. Therefore, IPOs are suited for portfolio firms of considerable size or companies with strong performances (Folus and Boutron 2015).

Since timing is crucial, PE firms start preparing for an IPO far in advance. Typically, an IPO has five steps and takes six to twelve months to complete after it receives approval from the company's board.

The first step is to select external partners, such as independent auditors, accountants, and legal counsel, who will work with the company to assess its corporate governance and structure in order to meet listing requirements. The underwriter, in the second step, performs an initial share valuation and creates paperwork like analysis based research, the listing prospectus as well as publicity requirements, while the external partners conduct the due diligence. The third step involves the IPO applicant registering with the financial regulator and submitting the prospectus as well as the registration form. The prospectus provides financial and business details about the company and its prospects. It clarifies the key threats that potential investors can experience. Possible investors are also informed in the prospectus on the operation itself, including the kind of shares being offered, the offer price, and the operation's timeline. The fourth step involves the company publicly declaring its IPO, staging a pre-marketing road show, and determining the range of the share price after receiving financial authority clearance. The IPO candidate conducts collective presentations and individual discussions to promote its stocks in the fifth step, while the underwriter evaluates the share demand and establishes the share price through the book-building procedure. The company's stock can from then on be traded publicly after the shares have been sold to private and institutional investors (Folus and Boutron 2015).

Three primary factors drive company IPOs. A company first attracts attention from potential clients, partners, investors, and any other third parties through the IPO. Second, a company's expansion can be financed by becoming public leading to the supply of long-term capital and varied financial resources. Third, an IPO gives investors a means to sell their equity stakes and completely or partially exit the company. PE funds might count as some of these current shareholders (Folus and Boutron 2015).

However, due to legal limitations and the market supervisor's regulations, an IPO has substantial transaction costs. In the U.S., for example, the Securities and Exchange Commission (SEC) determines the regulatory requirements and limitations. In addition, if the PE fund decides to completely divest one of its portfolio companies, public investors envisaging an acquisition may consider this to be a mistrustful perception of the company's prospects. Moreover, for a time period known as a "lock-up period", the IPO's rules may forbid the financial sponsors from selling any portion of their position. Potential opportunity costs could arise from a possible price discount for the IPO. These elements contribute to the lengthy and pricey nature of an IPO (Folus and Boutron 2015).

2.4.3 Secondary Buyout

In a secondary buyout, a PE fund disposes one of its portfolio companies to a different PE fund. In general, leverage is used in such circumstances. The main reason why PE funds decide to divest a portfolio company in a secondary buyout is that, after consultation with the management team, they have concluded that a larger PE fund can more adequately support the company in its further development. Alternately, a PE fund can opt for a secondary buyout if it has already generated a significant return on its initial investment, has held the company for a predefined minimum time horizon, or is too close to the date when it will no longer be able to call uninvested cash, also known as dry powder. An additional advantage of divesting the portfolio company to another financial sponsor is a higher adaptability regarding the structure

of the sale. For instance, a portion of ownership could be retained by the vendor, thus allowing the business to carry on operating with the goal of long-term expansion. Shortening the lifespan of a deal can be accomplished by partial ownership, which has become increasingly important to PE companies (Folus and Boutron 2015).

Even if a company may not yet be prepared for a trade sale or an IPO, cases exist in which a PE firm is unable to continue financing it. In such situations, a cost-efficient option might be to sell the business to another PE firm that sees promise in further developing the company. This approach can also be used to resolve a dispute between the portfolio company's management and the PE investor backing it. In comparison to an IPO or a trade sale, a secondary buyout is completed more rapidly and provides the benefits of an instant and complete exit (Folus and Boutron 2015).

2.4.4 Exit Options for EnviTec

Of the three exit options mentioned, two are viable for EnviTec, namely the trade sale and the secondary buyout.

The trade sale would be based on the general idea that it is becoming increasingly necessary to rely more on renewable energies. This is further driven by a rising number of new regulations that incentive the use of renewable energies and, on the contrary, penalise the use of non-sustainable sources of energy, thus forcing utilities, in particular, to adapt their business model and reposition themselves. Potential target buyers could benefit from acquiring EnviTec through expanding their portfolio by adding a biogas segment to their business. In addition, gaining full ownership of EnviTec would enable direct access to international markets in different geographical regions as EnviTec is already active in 16 countries worldwide. Finally, an acquisition would enable synergies for the potential target buyer reflected in higher returns. However, a strategic sale represents a slow and laborious process requiring a detailed due

diligence. Potential candidates to acquire EnviTec in a strategic sale would be for example the German energy company E.ON, British oil and gas company BP or French integrated energy and petroleum company TotalEnergies. All three operate in the same industry as EnviTec and a biogas division would prove to be a useful addition to their existing portfolio. Furthermore, they possess the necessary organisational structure to successfully integrate EnviTec and thus benefit from the synergy effects.

The idea behind the alternative option, the secondary buyout, would be that after a holding period of 5 years, EnviTec, which is currently relatively modest in size and presents a high potential for additional growth initiatives, will be sold to another Private Equity fund. These funds could benefit from the fact that with a small number of desirable targets, significant amounts of committed cash, and enticing lending conditions with low interest rates, secondary purchasers can expect competitive pricing. Moreover, they are often able to pay higher prices than strategic acquirers due to the potential for higher returns and access to larger amounts of funds. Ultimately, the size of the transaction makes it attractive for a follow-up LBO. Nevertheless, the success of the investment thesis and cash production are essential for a follow-on LBO to be appealing. Additionally, there is a risk of saturation of leverage and platform building for PE purposes. Private Equity firms that could be potential candidates for a secondary buyout are KKR, CIP, and H.I.G. Capital, as EnviTec corresponds to their investment focus. Furthermore, they have completed investments of similar size in the renewable energy sector in the past.

Overall, the trade sale option seems more likely, as an acquisition of EnviTec would be an effective possibility for energy companies to gain a foothold in the biogas market.

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Appendix

I Table of Abbreviations

AG ..... *Aktiengesellschaft (Listed company)*
CAGR ..... *Compound annual growth rate*
CAPEX ..... *Capital expenditure*
CCC ..... *Cash conversion cycle*
CEO ..... *Chief Executive Officer*
CFO ..... *Chief Financial Officer*
COGS ..... *Cost of goods sold*
COO ..... *Chief Operating Officer*
CTO ..... *Chief Technology Officer*
DCF ..... *Discounted cash flow*
DIO ..... *Days inventory outstanding*
DPI ..... *Distributed to paid in ratio*
DPO ..... *Days payable outstanding*
DSO ..... *Days sales outstanding*
EBIT ..... *Earnings before interest and taxes*
EBITDA ..... *Earnings before interest, taxes, depreciation and amortisation*
EV ..... *Enterprise value*
FCF ..... *Free cash flow*
GP ..... *General partner*
IPO ..... *Initial Public Offering*
IRR ..... *Internal rate of return*
KPI ..... *Key performance indicator*
kW ..... *kilowatts*
LBO ..... *Leveraged Buyout*
LNG ..... *Liquefied natural gas*
LP ..... *Limited partner*
M&A ..... *Mergers and acquisitions*
MIRR ..... *Modified internal rate of return*
MM ..... *Money multiple*
MW ..... *Megawatt*
NAV ..... *Net asset value*
NPV ..... *Net present value*
NWC ..... *Net working capital*
OOI/OOE ..... *Other operating income/expenses*
PE ..... *Private equity*
PIK ..... *Payment in kind*
PLC ..... *Public limited company*
PPE ..... *Property, plant, and equipment*
ROCE ..... *Return on capital employed*
RVPI ..... *Residual value to paid in ratio*
SEC ..... *Security and Exchange Commission*
SG&A ..... *Selling, general and administrative expenses*
TVPI ..... *Total value to paid in ratio*
U.S. ..... *United States of America*