TURNAROUND PRIVATE EQUITY

Direct Research Internship [DRI]

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1. Abstract

This paper analyzes the desired parameters of a target of a private equity focused on turnarounds and the decision process behind it. Using four linear regressions for each stage of the decision process – lead, indicative offer, binding offer and win – the characteristics increasing the chance of the target to be acquired by the private equity were determined. This research used data of a company called Mutares AG.

In the Lead stage the target was significantly (significance level of below 10%) influenced by profitability, debt levels, type of industry it finds itself in and size of the seller. In the Indicative Offer stage, a significant influence exhibited the turnover, debt levels and size of the seller. In the Binding Offer stage, profitability, type of industry it finds itself in and size of the seller had a significant influence on the dependent variable. In the Win stage, the variables that were found to be significant were size of the seller and size of the target.

In the following sections literature review, data description and collection as well as results and their detailed analyses can be found.

2. Introduction and literature review

This paper tries to quantitatively analyze through several regressions the desired parameters of a private equity focused on turnarounds.

2.1. Turnaround Private Equity

Private equity [PE] is composed of funds and investors that either directly invest in private companies or that invest in public companies in order to take them private.

Over the last five years private equities world-wide have raised USD 3 trillion and the industry sees a continuous growth exceeding the capital raised pre-crisis (Bain & Company, 2018). There has been significant research done on the typical types of private equities, such as Buyout, Venture capital or Growth firms. However, there has been lack of explanation when it comes to more niche private equities, such as PEs focused on distressed companies.

Distressed private equity broadens the range of prospects that PEs pursue, as it focuses on firms that are experience difficulties and declining profitability. A corporate turnaround is defined by Pandit (2000) as “the recovery of a firm’s economic performance following an existence-threatening decline”. The investments are made with the aim to re-establish prosperity. In a turnaround approach, the PE tries to restructure the firm by often investing new equity or by finding different types of new financing and taking control of the company (Rossini, 2018). In 2006, PEs focused on companies in distress accounted for 3%. Consequently, the percentage grew to 10% in 2011 and it keeps continuously increasing (Preqin, 2011).

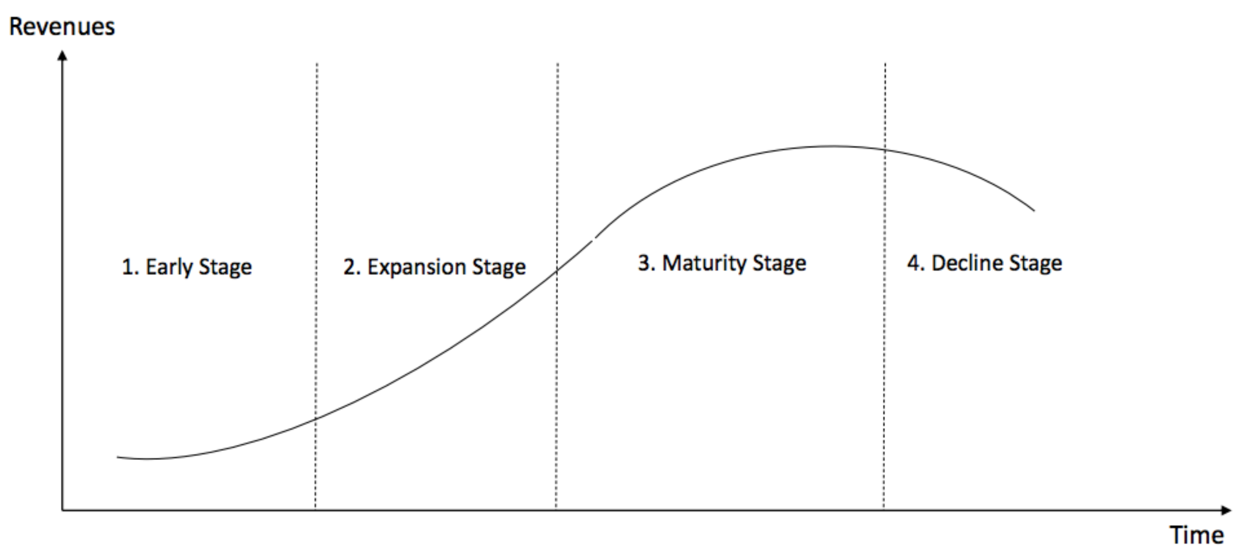

Figure 1: Private Equity investment stages

According to current research there are four stages when private equities invest (1) Early stage for venture capitals (2) Expansion stage for growth capital (3) Maturity stage for buyouts and (4) Decline stage for turnarounds. In the fourth stage, decline for turnarounds, managers are often unable to handle such difficult situations and are therefore replaced by turnaround specialists. According to Calandro (2011) distressed companies are able to mitigate the severance of periods of crisis by collaborating with PEs and “by approaching turnaround valuation and exit planning conservatively and then by aggressively implementing private equities business plan to its targeted exit”.

Research on turnarounds differentiates between three types of distressed companies (1) hopeless situations that no amount of time, money or effort can save; (2) obvious winners that will revive as the current credit freeze thaws; and (3) problematical situations that require a careful due diligence process to sort the lackluster survivors from those businesses that will best respond to skilled turnaround management. Shaughnessy and Harrigan (2009) continue to describe that the first type of distressed company, “hopeless situations”, is often publicly traded with high amounts of leverage and lacking invested capital needed to repair the facilities and retain the employees. The second type, “obvious winners”, often entail superior business models within attractive industries that are easily improvable and were short-term caught in a credit freeze. Such firms attract high attention from investors leading to inflated valuations. Thirdly, there are “problematic situations” requiring intense investigation of intellectual property, market position or special competencies, which is impossible without high level of due diligence. According to Shaughnessy & Harrigan (2009) the only category enabling high returns to justify resources committed is “problematic situations”.

Additionally, Abebe (2008) focusing on managers in turnaround situations discovered that leadership characteristics are significant predictors of organizational outcomes. More specifically that long executive tenure has strong and adverse impact on corporate turnaround performance. Moreover, executives with output-related functional background positively influence corporate turnaround performance.

However, there is lack of research quantifying exact types of targets that are most optimal to restructure and detailed description of companies classified under “problematic situations” lacks. Therefore, this research focuses on the examination of what type of problematic companies are ideal types for turnaround private equities based on collaboration with a German turnaround private equity Mutares AG.

2.2. Mutares AG

Mutares AG was established in 2008. Mutares' investment focus is on small to medium sized companies headquartered in Europe that find themselves in special situations. The targets should have turnover of at least EUR 50 million and a negative result. The aim of Mutares is to identify restructuring measures and deploy its own operations team in order to lead the target back to profitability.

Currently, Mutares has eleven portfolio companies across five industry segments with combined turnover of EUR 900 million in 2017 (Figure 2).

Figure 2: Mutares' portfolio companies

Mutares makes two types of investments (i) platform investments, e.g. investments into companies to be included in the portfolio on standalone basis (ii) add-on acquisitions; e.g. investments into companies to be acquired by already existing portfolio companies. For purpose of this research only platform investments will be considered, as characteristics of the two types of investments can differ significantly.

3. Data

Based on literature review as well as available data from Mutares AG the following research question was developed:

Which parameters have a significant effect on the success of a target in a turnaround situation?

The aim of this paper is, therefore, to quantify the nature of a successful target looked at by turnaround private equities by using Mutares AG as an example. On general basis, Mutares AG focuses on four key indicators when evaluating its investments: the size of a seller, financials, country and industry. Therefore, to be able to quantify the result, the following hypothesis was developed:

H0: At least one of the key indicators (size of seller, financials, country, industry) has a significant influence on the probability of the target's success.

H1: None of the key indicators (size of seller, financials, country, industry) have a significant influence on the probability of the target's success.

To assess the research question, sample of 665 data was used. The data comprises past targets that Mutares AG took into consideration. As deals are evaluated independently from each other and they are considered on a stand-alone basis without an influence of one to another, therefore no correlation is expected.

3.1. Independent variables description

All target data of Mutares AG is entered into Salesforce. Salesforce is a cloud-based customer relationship management platform helping manage valuable information. Based on these parameters entered into Salesforce a rating ranging from 0 to 5 is awarded, the higher the number the more theoretically optimal the target. There has been a dummy variable created for each categorial variable and for any variables in euros a log was generated.

3.1.1. Seller

Mutares AG is a specialist in corporate carve outs, whereby it acquires an unprofitable and often non-core unit of a large corporation with the aim to restructure it. Therefore, the focus lies on corporations that have often turnover above two billion euros with capacity to support the hand-over of the company rather than on family businesses or companies with spread shareholder structures with small capital.

In the data collected, there were four possible outcomes of the Seller size:

- No information
- Turnover of below EUR 2 billion
- Turnover of below EUR 10 billion
- Turnover of above EUR 10 billion

3.1.2. Financials

There are three preliminary financial indicators that are key to Mutares AG: turnover, profitability and debt. Firstly, the target should have turnover between EUR 50 to EUR 500 million to be considered. Such sales levels ensure that the company has established business with already existing essential structures and the core of its problems lies rather in operational inefficiency than in the company’s life stage. Secondly, Mutares AG focuses on unprofitable companies. Hence, of interest are targets that have often negative or close to zero level of EBITDA and therefore very low or preferably negative EBITDA margins. Similarly, as with turnover, such numbers indicate that the company is managed inadequately and could have potential to optimize processes when taken over. Thirdly, most preferred is a target with zero debt levels. As a lot of cash is needed to manage a turnaround process, an already highly leveraged company lacks options how to attain new financing and requires a cash outflow to service already existing liabilities and is therefore undesirable.

In the data collected, there were five possible outcomes of the Target size:

- No information
- Turnover of below EUR 50 million
- Turnover of below EUR 100 million
- Turnover of below EUR 200 million
- Turnover of above EUR 200 million

There were also four possible outcomes of the debt level:

- Zero debt level
- Debt level of up to EUR 20 million
- Debt level of up to EUR 50 million
- Debt level of above EUR 50 million

In addition, two variables were tested on scale levels, more specifically the turnover and profitability. Turnover are sales in millions of EUR and profitability is EBITDA in millions of EUR. Therefore, these measures rather represent the size and the ability of the company to cover all its costs with its revenue. They are not ratios.

3.1.3. Country

Mutares AG has currently offices in Munich, Paris, Milan and London and its focus therefore lies on companies headquartered in Europe.

In the data collected, there were five possible outcomes of the Target location:

- No information
- Companies headquartered in the DE-AT-CH region (Germany, Austria, Switzerland)
- Companies headquartered in the N-W-S region (North-, West-, South Europe)
- Companies headquartered in Eastern Europe
- Companies headquartered elsewhere

3.1.4. Industry

Mutares AG's portfolio currently comprises firms active in automotive, construction and infrastructure, consumer goods and logistics, engineering and technology, and wood and paper industry. The main focus lies on the automotive sector, however, Mutares AG also considers deals outside of its current portfolio industry scope.

In the data collected, there were seven possible outcomes of the Target size:

- No information
- Companies active in automotive/ industrial industry
- Companies active in construction/ infrastructure industry
- Companies active in consumer goods/ logistics industry
- Companies active in engineering/ technology industry
- Companies active in wood/ paper industry
- Companies active in other industries

3.2. Dependent variable description

In order to test if the independent variables have an influence on the success of the target, the process stage to which the target got was taken as the dependent variable. The process was separated into four stages: 1 - Lead, 2 - Indicative Offer [IO], 3 - Binding Offer [BO] and 4 - Win.

All deals that were internally discussed and analyzed, but for which no indicative offer was submitted are classified under a Lead. The process in this stage begins with receiving a Teaser most often from an investment bank. The Teaser is usually one to five pages long and it describes key investment highlights of a company, as well as basic financials and product information. All deals for which a Teaser is received have to be entered into Salesforce, together with key information, and classified as a Lead. At this point, the team consists of the director who received the Teaser and an Associate or Intern who analyzes the Teaser and reports whether it could be of an interest or not. If it does not fall within the Mutares AG criteria it is automatically rejected and the status is changed into Quit. If it might be of an interest a Non-Disclosure Agreement [NDA] is signed and an Information Memorandum [IM] with extensive company details is received. IM is usually close to one hundred pages and it contains detail company, product, industry, competition, financials and business plan description. In order to evaluate the deal, a short presentation is prepared for internal purposes to be sent to relevant bodies within Mutares AG to gain their opinion. Additionally, a model containing the key financials has to be built to understand the target`s cash need and potential. Usually, a Q&A list entailing all unclarities is created and send to the investment bank in order to be answered either via phone call or an e-mail. If the Mutares team working on the deal finds the project still of an interest, it will present it on an internal weekly pipeline meeting to the whole M&A team, after which is decided whether an IO will be sent out. If Mutares AG decides to send out an Indicative Offer, a legal document with description of understanding of the company, description of Mutares AG, summary of all key terms as well as valuation and next steps is submitted. In such case the status of the target will change into IO and it moves forward to the next stage, if no IO is submitted, the target is shifted to the Quit category and it is declined.

Deals for which an Indicative Offer with a potential buy price was submitted to the Seller, however where Mutares AG did not proceed to the next stage of submitting a Binding Offer, belong to the IO stage. In the IO stage Muares AG gets access to a dataroom in which all necessary company, financial, legal and other relevant documents are uploaded. All of the documents have to be reviewed by the responsible party within Mutares AG. Company and financial related information are reviewed by the intern and associate and if needed consulted with the director or manager on the project. All legal and tax information is reviewed by the intern or associate as well as legal and tax department within Mutares AG. The devoted team is daily in a contact in order to discuss the due diligence findings as well as assess the potential that Mutares AG could bring when acquiring the company. Out of the discussions result new measures that Mutares AG would take when taking over the target. The measures entail financial as well as strategic opportunities that have to be detailly elaborated on in the model together with all new information found. Consequently, if any information is missing it can be requested and new questions are frequently submitted if unclarities arise. Additionally, company presentation and site visits are planned in order to get to know the management and conduct a due diligence of the company`s operations. The site visits are besides the core team also attended by Operations team members with relevant expertise. If all findings are satisfactory, the Mutares team has to present the deal to an Investment Committee [IC] comprised of all relevant bodies of Mutares AG. If the IC finds the deal to be good fit to the portfolio and it agrees with the valuation as well as financial and strategic needs the deal can proceed to be BO phase, where a legal document with a binding offer is submitted to the investment bank. If not, the deal is re-classified as a Quit.

If a Binding Offer was given, although Mutares AG did not proceed to buy the company, the target was considered as fitting in the BO stage. This stage is dedicated to further due diligence including exact Carve Out needs and costs, detailed Business Plan planning, negotiations and term agreements with the management. Legal documents such as the Share Purchase Agreement and Transaction Service Agreement have to be finalized. Additionally, further meetings such as workshops concerning the operations of the company are being held to ensure that a smooth continuation of the business is possible post-closing. The extensiveness of the BO phase differs based on the difficulty of the operations of the company, clarity that Mutares AG has over all aspects of the business and the frame within which the deal needs to be closed. If all legal documents were finalized and signed, the terms have been negotiated and all aspects were proved to be sufficiently understood, the deal can proceed to the next stage. If there were new information found out during the due diligence phase, such as worst current trading than expected, or if the price and terms were not agreed upon, Mutares AG leaves the deal and it is re-classified under Quit.

If deal was signed and closed and the company afterwards belonged or still belongs within the Mutares AG portfolio, the target is classified as a Win.

There has not been enough information available to determine the overall percentage of deals that make it to each stage, as there were not sufficient data for each Salesforce entry. However, according to a Mutares AG presentation, on average there is approximately 400 deals received per year, 150 of them are being screened in detail (37.50%), for 30 of them are offers send out (7.50%), on 15 of them a detailed due diligence is conducted (3.75%) and 5 of them are consequently purchased (1.25%).

3.3. Data collection

As outlined above, all data were downloaded from Salesforce. Data from the establishment of Mutares AG (2008) until November 2018 were considered, if the dependent variable could be clearly identified and independent variables were properly entered into Salesforce. In total a sample of 665 deals was derived.

Notation	Industry	Region	Size of Seller	Size of Target	Stage	Debt
0	246	10	282	132	10	469
1	126	229	264	278	447	137
2	58	371	69	131	145	39
3	115	37	50	77	50	20
4	86	18	n.a.	47	13	n.a.
5	34	n.a.	n.a.	n.a.	n.a.	n.a.

Table 1: Descriptive statistics of nominal variables

Measure	Turnover	Profitability
Min	0	(55)
Mean	81	1
Median	47	0
Max	959	110

Table 2: Descriptive statistics of scale data

From analyzing the descriptive statistics of turnover and profitability only it can be already visible that average values of all targets identified are lower in turnover (mean of EUR 81 million) and higher in profitability (mean of EUR 1 million) than would be theoretically expected.

3.4. Data predictions

It is assumed that all variables (industry, target, size of the seller, size of the target and turnover) except debt and profitability will have a positive effect on the dependent variable. As Mutares AG focuses on unprofitable companies, it is anticipated that a profitable target will have an adverse relationship with the stage it gets into. Similarly, as low to none debt level is said to be desirable, it is projected that debt amounts will be oppositely related to each other, meaning that a higher debt leads to a decrease in the probability of the target to get into a further stage of the private equity process.

4. Results and Discussion

The problem statement studied in this paper was to assess the variables influencing the success of a target. In order to analyze the data, the statistical program SPSS was used. A linear regression has been run for each Stage of the target as a dependent variable and Industry (categorical, dummy variable), Region (categorical, dummy variable), Size of Seller (categorical, dummy variable), Size of Target (categorical, dummy variable), Turnover (scale, log variable), Profitability (scale, log variable) and Debt (categorical, dummy variable) as independent variables.

4.1. Correlation

It was predicted that there is no significant correlation between the variables. As visible from Table 3, there was no significant correlation at either -1 or 1 level found. The most significant correlations at 1% significance level ($p \leq 0.01$) was exhibited between the turnover and the size of the target at a level of 0.567. Such correlation means that the larger the size of the target, the greater its turnover. Consequently, at a level of positive correlation of 0.407, it was found that the larger the size of the target, the larger the seller divesting the business. All of these correlations make natural sense as target`s size is dependent on its revenue and it is more probable that a large seller will own such a business than a small firm or family business. At 0.321 a positive correlation was found between the size of the seller and the stage to which the target makes it, supporting the above stated notion that Mutares prefers to acquire targets from large corporations.

Correlations								
	Industry	Target	Size_Seller	Size_Target	Turnover	Profitability	Debt	Stage
Industry	1	0.035	.279**	.292**	-0.016	0.04	.178**	.124**
Target	0.035	1	0.001	-0.013	-0.069	0.07	0.005	0.028
Size_Seller	.279**	0.001	1	.407**	.087*	0.04	.185**	.321**
Size_Target	.292**	-0.013	.407**	1	.567**	.286**	.319**	.144**
Turnover	-0.016	-0.069	.087*	.567**	1	.156**	.132**	0.068
Profitability	0.04	0.07	0.04	.286**	.156**	1	0.022	-0.029
Debt	.178**	0.005	.185**	.319**	.132**	0.022	1	.175**
Stage	.124**	0.028	.321**	.144**	0.068	-0.029	.175**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

a. Cannot be computed because at least one of the variables is constant.

Table 3: Correlation Matrix

4.2. Regression

In order to assess the research question four different regressions were conducted. Each stage - Lead, IO, BO, Win - the target made it to was taken separately as a dependent variable to evaluate the different interpretations and characteristics. Firstly, a regression with Lead as a dependent variable was conducted.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.098	.089		12.318	.000
	lturnover	-.035	.022	-.081	-1.578	.115
	lprof	.051	.020	.100	2.592	.010
	Automotive_Industrial	-.073	.055	-.061	-1.320	.187
	Construction_Infrastructure	-.135	.071	-.082	-1.920	.055
	Consumer_Logistics	-.004	.056	-.003	-.071	.944
	Engineering_Technology	-.140	.062	-.100	-2.274	.023
	Wood_Paper	-.038	.084	-.018	-.450	.653
	DE_AT_CH	-.022	.037	-.022	-.584	.560
	Eastern	.019	.076	.009	.248	.804
	Diff_Reg	.051	.109	.018	.467	.640
	SS_b2	-.288	.045	-.299	-6.386	.000
	SS_b10	-.426	.065	-.278	-6.565	.000
	SS_a10	-.361	.074	-.203	-4.898	.000
	NA_SizeT	-.186	.064	-.154	-2.908	.004
	ST_b100	.007	.054	.006	.133	.894
	ST_b200	.051	.071	.035	.726	.468
	ST_a200	-.030	.090	-.016	-.332	.740
	Debt_b20	-.229	.044	-.198	-5.208	.000
	Debt_b50	-.159	.075	-.080	-2.122	.034
	Debt_a50	-.120	.105	-.044	-1.143	.254

a. Dependent Variable: Lead

Table 4: Lead as a dependent variable

It was observed that a significant influence has the log of profitability at 1% significance level, the construction and infrastructure industry at 5.5% significance level and the engineering and technology industry at 2.3% significance level. The size of the seller was significant at 0.05% level for all sizes and when a size was not entered into salesforce it had also a significance of 0.4%.

Additionally, debt below EUR 20 million was significant at 0.05% and debt below EUR 50 million at 3.4%. There was no significance found for debt level above EUR 50 million.

From the results it can be seen that when Mutares AG initially evaluates the deal, financials and the size of the seller are most important. Other things being equal, if profitability of a company doubles, the likelihood of the target to make it in the next stage is 5.1% higher. Profitability was a scale variable ranging from EUR -55 million to EUR 110 million. It is not in line with the results expected, as according to Mutares AG strategy, profitability should have a negative influence on the likelihood of success of the target. One of explanations could be that in practice financials provided in a Teaser are often more positive than in reality, as is often discovered during the Due Diligence phase. Additionally, according to the regression, if the size of the seller is in between EUR 2 billion and EUR 10 billion it has the most negative impact of -42.6%. Such finding suggests that for a target within the initial Lead phase, a seller size between such range is unfavorable. According to Mutares AG, in theory the bigger the concern the better, therefore it is not in line with the predicted results. Additionally, the two classifications of industry – construction and infrastructure and engineering and technology – both negatively affect the probability of the target to get to a further stage (b =-13.5% and b = -14.0% respectively). As Mutares AG focus lies on companies within the automotive industry, it does not deviate from the strategy. Both debt levels were found to negatively influence the success of the target, with debt below EUR 20 million decreasing the dependent variable by -22.9% and debt level below EUR 50 million by -15.9% all else constant. Such findings are in line with the notion of Mutares AG to pick targets that are not indebted.

It was expected that profitability and debt will be the most significant with both coefficients having a negative effect. Overall, the statistical findings mean that in the Lead phase Mutares AG approaches the choice of selecting which firm makes it to the next stage rather opportunistically than according to a predetermined set of rules mainly due to inconsistent findings when it comes to profitability and size of the seller.

Secondly, a new regression was tested with IO as a dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-.104	.083		-1.254	.210
	lturnover	.040	.021	.104	1.918	.056
	lprof	-.008	.018	-.019	-.461	.645
	Automotive_Industrial	.022	.051	.021	.434	.664
	Construction_Infrastructure	.037	.065	.026	.570	.569
	Consumer_Logistics	.019	.052	.018	.372	.710
	Engineering_Technology	.063	.057	.052	1.106	.269
	Wood_Paper	.030	.078	.016	.391	.696
	DE_AT_CH	-.004	.034	-.005	-.131	.896
	Eastern	-.033	.070	-.018	-.467	.641
	Diff_Reg	-.048	.101	-.019	-.481	.630
	SS_b2	.216	.042	.257	5.190	.000
	SS_b10	.236	.060	.175	3.926	.000
	SS_a10	.187	.068	.120	2.735	.006
	NA_SizeT	.081	.059	.077	1.372	.171
	ST_b100	-.064	.050	-.062	-1.289	.198
	ST_b200	-.062	.065	-.048	-.948	.343
	ST_a200	-.013	.084	-.008	-.160	.873
	Debt_b20	.146	.041	.144	3.580	.000
	Debt_b50	.145	.069	.083	2.089	.037
	Debt_a50	-.025	.098	-.010	-.253	.800

a. Dependent Variable: IO

Table 5: IO as a dependent variable

When testing the same set of independent variables against IO as a dependent variable, log of turnover (at 5.6% significance), the seller size (below EUR 2 billion 0.05% significance, below EUR 10 billion 0.05% significance and above EUR 10 billion 0.6% significance) and the level of debt (below EUR 20 million at 0.05% and below EUR 50 million at 3.7%) were found to have an influence over the dependent variable.

If the log of turnover doubles and everything else stays constant, the dependent variable increases by 4.0%. Such observation supports the strategy of Mutares AG to focus on companies with large enough revenues indicating a steady order intake. Similarly, as with the previous regression, the biggest influence from the size of seller has the level of between EUR 2 billion and 10 billion. However, for IO targets, it increases the dependent variable by b = 23.6% all else equal. Again, there is not specifically mentioned that it would be the sweet spot for Mutares AG when it comes to the size of the seller, therefore its consistency among phases shows a highly interesting finding. The most statistically significant is debt of below EUR 20 million, which means that the lower the debt of the target, the better, coinciding with the strategy. All else equal, if debt becomes twice as high, the dependent variable also increases (b = 14.6%).

Generally, such findings are more in favor of the overall Mutares AG strategy than the results of the Lead stage mainly due to the fact that companies with larger revenues and low debt levels have a positive effect on the stage the target gets to. Possible explanation is that when an Indicative Offer is submitted the target has to be examined in more depth and approved by more bodies within Mutares AG, therefore leading to a more coherent evaluation of its characteristics.

Thirdly, BO was taken as a dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-.091	.052		-1.745	.081
	lturnover	.021	.013	.089	1.614	.107
	lprof	-.025	.012	-.090	-2.185	.029
	Automotive_Industrial	.047	.032	.072	1.454	.146
	Construction_Infrastructure	.112	.041	.123	2.722	.007
	Consumer_Logistics	.016	.033	.024	.495	.621
	Engineering_Technology	.054	.036	.071	1.503	.133
	Wood_Paper	.044	.049	.038	.889	.374
	DE_AT_CH	-.008	.022	-.016	-.393	.694
	Eastern	.001	.044	.001	.014	.989
	Diff_Reg	.029	.064	.018	.458	.647
	SS_b2	.079	.026	.149	2.986	.003
	SS_b10	.146	.038	.174	3.854	.000
	SS_a10	.137	.043	.141	3.184	.002
	NA_SizeT	.044	.037	.067	1.182	.238
	ST_b100	-.005	.031	-.008	-.156	.876
	ST_b200	-.042	.041	-.052	-1.010	.313
	ST_a200	.006	.053	.006	.112	.911
	Debt_b20	.039	.026	.062	1.529	.127
	Debt_b50	-.018	.044	-.017	-.416	.677
	Debt_a50	.094	.062	.062	1.523	.128

a. Dependent Variable: BO

Table 6: BO as a dependent variable

For Binding Offer as a dependent variable log of profitability was significant at 2.9%, construction and infrastructure industry at 0.7% and size of seller at 0.3% for below EUR 2 billion, at 0.05% for below EUR 10 billion and at 0.2% for above EUR 10 billion.

In line with the hypothesis, profitability has a negative influence of b = -2.5% on the dependent variable. Therefore showing that when it comes to the Binding Offer, companies do have to be unprofitable to increase the probability of success. Additionally, the results show that if a company was located in the construction and infrastructure industry, the dependent variable increases by 11.2% when the industry variable doubles, all else equal. Such results are contradictory to the Lead phase, where such industry had a negative influence on the dependent variable. Such finding was not expected, however, one of possible explanations is that this type of industry is riskier due to reliance of approval of the business by many parties when building, high correlation with crisis and the need of deep understanding of the local market and people. Therefore, possibly Mutares AG is at first skeptical of such target, whereas after proper Due Diligence it can find it more appealing. Lastly, size of seller below EUR 10 billion is the most significant as well as influential at b = 14.6%.

Continuing from the results of the IO phase, it can be visible that the BO stage is also more aligned with the overall strategy of Mutares AG. The most coherent result is the significance of negative influence of profitability displaying that at this stage Mutares AG focuses in depth on the cash burn of a company and it begins negotiations with the management. If a company is unprofitable often a EUR 1 deal can be executed, meaning that Mutares AG acquires the target for only one euro, as it is cash losing and therefore no positive equity value can be calculated. With profitable companies, such type of transaction would not be possible, and it is often until the BO phase that the final valuation is determined, and the parties need to agree on the price before following to the next stage, where the target is acquired. The significance of the size of the seller below EUR 10 billion could be explained by the power of large corporations. When corporates larger than EUR 10 billion are selling of one of their units a high competitiveness can be assumed, as such transaction would not only bring an opportunity for a great investment but also publicity. Such conditions give the seller a high power, therefore Mutares AG might prefer to make a deal with a seller of below EUR 10 billion where the terms can be negotiated more smoothly.

Fourthly, regression for the Win phase was executed.

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.043	.028		1.563	.119
	lturnover	-.010	.007	-.084	-1.488	.137
	lprof	-.009	.006	-.064	-1.523	.128
	Automotive_Industrial	-.002	.017	-.005	-.093	.926
	Construction_Infrastructure	.010	.022	.022	.472	.637
	Consumer_Logistics	-.026	.017	-.073	-1.476	.141
	Engineering_Technology	.011	.019	.029	.592	.554
	Wood_Paper	-.022	.026	-.036	-.832	.406
	DE_AT_CH	-.013	.011	-.046	-1.137	.256
	Eastern	.015	.024	.025	.621	.534
	Diff_Reg	-.015	.034	-.018	-.431	.666
	SS_b2	.006	.014	.022	.434	.664
	SS_b10	.052	.020	.119	2.579	.010
	SS_a10	.024	.023	.047	1.042	.298
	NA_SizeT	.032	.020	.092	1.591	.112
	ST_b100	.020	.017	.061	1.229	.220
	ST_b200	.043	.022	.103	1.958	.051
	ST_a200	.012	.028	.023	.429	.668
	Debt_b20	.014	.014	.044	1.058	.290
	Debt_b50	-.014	.023	-.025	-.612	.541
	Debt_a50	.043	.033	.056	1.329	.184

a. Dependent Variable: Win

Table 7: Win as a dependent variable

The only two significant variables for the Win stage are size of seller below EUR 10 billion at 0.1% with b = 5.2% and size of target below EUR 200 million at 5.0% with b = 4.3%. Such results mean that the differentiation between Binding Offer and a Win is the variable size of target, where in the past, Mutares AG aimed for targets below EUR 200 million with a seller in the range of EUR 2 billion and EUR 10 billion.

$$Win = 0.043 + 0.052 * (Seller\ Size\ Below\ EUR10bn) + 0.043 * (Target\ Size\ Below\ EUR200m) + \varepsilon$$

Whereas the size of the seller of below EUR 10 billion has been significant throughout the PE process stages, the size of the target has not been significant until the Win phase. After evaluating a deal for a large amount of time and investing many resources into the due diligence and overall assessment of the target, it might be that the team is invested in the deal and loses objectiveness. However, the fact that one size of the target is more significant than others does suggest that Mutares AG has a sweet spot for companies between EUR 100 million and EUR 200 million in size. According to the strategy, targets up to EUR 500 million should be desirable. From the results can be visible that in the past that was not the case.

4.3. Multicollinearity

The variance inflation factor (VIF) testing for multicollinearity (Table 4) proves that there is no multicollinearity present in the sample, as all VIF values are below the number 5 that is generally taken as a benchmark for a proof of inter-associations among the tested variables.

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	1.066	0.086		12.341	0.000					
Industry	0.015	0.018	0.034	0.840	0.401	0.124	0.033	0.031	0.841	1.189
Target	0.036	0.040	0.033	0.887	0.375	0.028	0.035	0.033	0.988	1.012
Size_Seller	0.252	0.034	0.307	7.363	0.000	0.321	0.278	0.271	0.780	1.282
Size_Target	-0.035	0.036	-0.053	-0.969	0.333	0.144	-0.038	-0.036	0.447	2.235
Turnover	0.000	0.000	0.065	1.387	0.166	0.068	0.054	0.051	0.623	1.604
Profitability	-0.004	0.004	-0.043	-1.107	0.269	-0.029	-0.043	-0.041	0.900	1.112
Debt	0.120	0.039	0.121	3.086	0.002	0.175	0.120	0.114	0.883	1.133

a. Dependent Variable: Stage

Table 8: Overall VIF

4.4. Limitations

Although the research was conducted carefully, several limitations can be identified. First, only fully available data of Mutares AG were used to assess the most important characteristics that a target should exhibit in order to be appealing for turnaround private equities. However, no bias is expected as the quality of information entered into Salesforce depends on the Teaser provided by an investment bank, which is created based on information provided by the management of the target. However, in order to be able to generalize the results, more diversified data should be collected.

Second, the data inputted into Salesforce are recorded by individuals with often limited information at that time, therefore it is possible that a human error could have occurred and extraordinarily a target values were recorded inappropriately.

Thirdly, as SPSS does not have a test for heteroscedasticity, such test should be in the future performed and the results accounted for.

5. Conclusion

Lately, the popularity of private equities significantly increased leading to several researches focusing on several types of PEs. However, there has been a little focus on private equities focusing itself on turnarounds and the few researches that have been conducted and have examined the targets nature and the decision process, lacking quantitative support directly from the source.

In this paper, the factors effecting the probability of a target getting into a next stage with the private equity processes have been discussed. The data consists of a sample of 665 targets from January 2008 until November 2018. Specifically, the impact on the Stage of Industry, Region, Seller Size, Target Size, Turnover, Profitability and Debt were studied. Such data allowed for analysis of the decision process at Mutares AG.

Importantly, even though there was correlation found between the tested variables, it was far from the levels of -1 or 1 correlation. Firstly, the turnover of the target was found to be positively correlated with the size of the target (0.567). Secondly, positive correlation was found between the size of the target and the size of the seller (0.407). Thirdly, the stage of the target was positively correlated with the size of the seller (0.321). All other correlation levels found were below the level of 0.320.

The common significant variable among all four process stages was the size of the seller, where it had a negative influence at the Lead phase, whereas the influence turned positive for all stages thereafter. Additionally, the log of profitability was found to be significant at the Lead at 1% and BO stage at 2.9% and construction and infrastructure industry at 5.5% for Lead and 0.7% for BO. Last variable that appeared to be significant at various stages was the debt of level below EUR 20 million and below EUR 50 million. These two variables were significant for the Lead (0.05% and 3.4%) and IO (0.05% and 3.7%) stage, however, they seemed to have no effect in the BO and Win stage. One possible explanation could be that debt levels are often stable and directly disclosed at the beginning, as all legal documents have to be provided. Whereas variable such as profitability can change last minute, when new current trading is submitted at the later stages.

All in all, the results did not fully support the strategy of Mutares AG outlined above in the Lead phase, as they were quite inconsistent at times. However, they turned more coherent in the later stages from which it can concluded that in order for the target to be acquired, the size of the seller should be between EUR 2 billion and EUR 10 billion and the target`s size should be lower than EUR 200 million.

5.1. Future Research Recommendations

In order to bring more significance to the results of the study and to find more characteristics explaining the targets of turnaround private equities, a research with larger dataset derived from more PEs in the industry should be taken.

Furthermore, it would be interesting to grasp the quantitative difference between characteristics of targets of turnaround private equities working in different geographies. A potential future research could broaden the scope of this paper and include the USA, Asia or for example emerging markets to assess how generalizable the results of this research are.

6. References

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