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RESEARCH ARTICLE

How activist investors value target firms: Evidence from hedge fund presentations

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Abstract

This research study provides insights on how activist hedge funds perform valuation analyses of target firms. Relevant data was hand-collected from a sample of activist hedge fund presentations. Based on the hedge funds' valuation analyses, the undervaluation of the target firms amounts to approximately 30%, compared to the targets' current share price. Besides, activist investors derive a value enhancement potential from their proposed strategies of approximately 70% to the targets' current share price. These valuation results rely predominately on trading multiples. The dominant multiples are Enterprise value/EBITDA (EV/EBITDA) and Price/Earnings (P/E). Further, applied multiples are mainly forward-looking, and the predicted performance measures are primarily consensus estimates. Besides, hedge funds sometimes adjust multiples arbitrarily to increase the comparability. Our results confirm that short-term investors rely predominately on pricing analyses in their valuations.

KEYWORDS

corporate finance, corporate valuation, hedge funds, shareholder activism

JEL CLASSIFICATION

G11, G32, G34, D53

1 | INTRODUCTION

Shareholder activism has a long standing history in capital markets. Already in the early 1900s, financial institutions such as insurance companies, mutual funds, and banks were active corporate governance contributors, who were joined in the 1950s by individual investors, hedge funds, and private equity firms. Gillan and Starks (2007) refer to this as an evolutionary process of activism, and view hedge funds and private equity funds activism as the most recent and dominating form of activism.

Activist hedge funds usually take long, minority positions in underperforming companies with substantial value creation potential (Damodaran, 2003). Brav et al. (2008) come to the conclusion that in approximately half of the campaigns, the activist believes that the target company is undervalued and that the fund can help maximizing shareholder value. As activist investors are predominately value investors, they must identify undervalued firms in the first place. Undervaluation implies that the allocation of capital might be inefficient (Damodaran, 2003). Subsequently, funds need to develop

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value-enhancing strategies to unlock shareholder value and estimate the value-enhancement impact from their demands. For both actions (i.e., identification of undervaluation and estimating the value impact from value-enhancing strategies) valuation analyses are required. However, research that addresses the valuation of publicly traded targets by activist hedge funds is lacking. Consequently, this research study aims to analyze which valuation approaches and methodologies activist hedge funds use to make a contribution to the prevailing research gap.

The data for our analyses were hand-collected from the original activist hedge fund presentations. In principle, these presentations were used for communicating the demands to the target in the disciplining stage (i.e., after a stake in the target firm was acquired). Our examinations extend from 2013 to 2019 and consist of 30 hedge fund campaigns in total. The procedure of assessing the presentations involved scanning 1671 pages of content and documentations of valuation methodologies.

Section 2 provides theoretical and empirical insights into hedge fund activism. Section 3 outlines the relevance of valuation analyses for activist investors. Section 4 contains a literature review, summarizing prior related studies on valuation analyses by institutional investors. Section 5 covers the applied research methodology, our sample, and documents the results of our analyses. Section 6 discusses and critically assesses our research findings. Section 7 provides a detailed discussion of practical implications for various professionals and institutions. Section 8 summarizes our results and highlights the necessity for further research.

2 | FUNDAMENTALS OF SHAREHOLDER ACTIVISM

Gillan and Starks (2007) define shareholder activists as minority investors who, dissatisfied with some aspect of a company's management or operations, attempt to change the company without a change in control. Their minority stake allows them to push for changes in firms typically with weak corporate governance mechanisms to increase shareholder value. Consequently, shareholder activists act as a catalyst for change, thereby increasing the fund's returns in the process (Boyson et al., 2017; Damodaran, 2003). Over the recent decades, especially hedge funds have emerged as shareholder activists.

Katelouzou (2015) describes the hedge fund activism process in a four-stage framework. The framework consists of entry, trading, disciplining, and exit. A conventional activist hedge fund campaign starts with identifying and selecting a target company with value creation opportunities for engagement (entry stage). According to Brav et al.

(2008) and Boyson and Mooradian (2011), target firms typically have low valuations compared to their fundamentals (typically a sign of undervaluation). In terms of operational performance, targets have strong operating cash flows and low level (sales) growth rates; additionally, their return on assets (ROA) is superior to their peers, and stock performance is lagging behind the market.

After an activist hedge fund has identified a potential target, it begins to accumulate its minority ownership interest (trading phase). Activist hedge funds typically buy a sizeable equity stake in the target company on the open market (Katelouzou, 2015), ranging on average between 5% and 10% (Boyson & Mooradian, 2011; Brav et al., 2008; Katelouzou, 2013).

After building a significant minority stake, an activist hedge fund announces an adjustment in corporate policy or management that it considers will add value, and attempts to implement this adjustment thereafter (disciplinary phase) (Gantchev et al., 2020; Katelouzou, 2015). An activist makes its investment intents known to the target either privately via letters or meetings, or publicly through regulatory filings (Katelouzou, 2015). Typical activist investors' demands, objectives, and goals include the elimination of an undervaluation of the target firm (maximization of shareholder value), an adjustment of the capital structure, a correction of the target firm's business strategy, the sale of the company, or an improvement of the prevailing corporate governance structures (Brav et al., 2008). Based on Brav et al.'s findings (2008), one can observe that in approximately 40% of the campaigns, activist hedge funds achieve their main stated goals. A partial success, where hedge funds gain significant concessions from their targets, is observable in approximately 25% of the cases. In 21% of the cases, the fund fails its mission or withdraws from the target (Brav et al., 2008).

Finally, an activist hedge fund exits its investments to realize the gains of its disciplining activities (exit phase; Katelouzou, 2015). This is typically done through selling their shares on the open markets (Brav et al., 2008). Activist hedge funds usually hold on to their investments for 1 to 2 years on average (Becht et al., 2009; Brav et al., 2008; Katelouzou, 2013).

3 | RELEVANCE OF VALUATION ANALYSES BY ACTIVIST INVESTORS

Valuation analyses represent an important activity of activist investors to determine the potential prospects of their investing activities. First, valuation analyses allow the hedge fund to identify undervalued firms (hereafter referred to as entry valuation). Second, valuation analyses are required to understand the potential value impact of

the funds' to-be-implemented value-enhancing strategies (hereafter referred to as exit valuation).

Generally, activist investors can be categorized as value investors who try to identify whether a target firm's market price is in line with its "true" intrinsic value (Fabozzi et al., 2017; Graham et al., 1962). The price at which a stock trades should reflect the companies' ability to generate cash flows and the risk associated with future cash flow streams. However, each asset's market price will also be a function of the supply and demand for that asset, and the market price might deviate from its intrinsic value due to company specific or market related factors (Fabozzi et al., 2017). Finding assets which are currently mispriced by market participants represents one essential return driver of activist investors.

Besides, activist investors need to understand what value impaction their demands potentially could have on the share price of their target firms. However, which valuation approaches do activist investors apply for their entry and exit valuation analyses?

4 | LITERATURE REVIEW ON VALUATION ANALYSES BY INSTITUTIONAL INVESTORS

To the best of our knowledge, existing literature on valuation approaches applied by activist investors is non-existing. We, therefore, extend our literature review to institutional investors in general to get indications on potential valuation approaches applied by activist hedge funds for their entry and exit valuations.

Focusing on a North American sample, Gompers et al. (2015) surveyed private equity investors. They find that private equity investors primarily rely on multiples and internal return rate (IRR) to evaluate investments. Vydržel and Soukupová (2012) come to similar conclusions by analyzing the applied valuation methodologies of private equity professionals in the Czech Republic. The authors observe that relative valuation appears to be the dominant valuation approach rather than income-based methodologies. The survey participants most often apply transaction multiples based on Earnings before interest, taxes, depreciation, and amortization (EBITDA), sales, or Earnings before interest and taxes (EBIT). Discounted cash flow (DCF) ranks second, followed by market multiples (i.e., trading multiples).

The studies by Fouche and van Rensburg (1999) and Freeman and Bartels (2000) focus on valuation methodologies applied by equity portfolio managers. Fouche and van Rensburg (1999) surveyed the investment appraisal techniques of South African unit trust portfolio managers. The authors observe that the most popular security

valuation technique is the P/E ratio multiplied by forecasted earnings. Freeman and Bartels (2000) conducted a global survey of investment practices and perceptions of major portfolio investors in five Southeast Asian equity markets. Among the commonly used valuation measures are Price/Earnings (P/E), Price/Book (P/B), Enterprise value/EBITDA (EV/EBITDA), and DCF.

Moizer and Arnold (1984) conducted a survey amongst UK investment analysts, including stockbrokers, financial analysts, as well as investment and portfolio managers of pension funds and insurance companies. Their survey finds that the P/E ratio is the predominant method applied in practice. The DCF (NPV) is used only infrequently. Similar results are obtained by Pike et al. (1993), who examined the valuation approaches adopted by investment analysts in both the United Kingdom and Germany, including banks, trusts, investment management companies, stockbrokers, and insurances. Fundamental analysis in combination with P/E multiples is found out to be the predominant method. The results of their sample show that DCF methods have little application for the respondents in practice. Imam et al. (2008) also examined the use of valuation models by UK investment analysts. The authors' study was based on interviews with sell-side analysts from leading investment banks and buy-side analysts from asset management firms. The DCF and the P/E are identified as the primary models for buy-side analysts; on the contrary, cash flow-based models are preferred by sell-side analysts (Imam et al., 2008).

Bancel and Mittoo (2014) studied the responses of valuation experts from 10 European countries with Chartered Financial Analyst (CFA) or equivalent designations. They come to the conclusion that the most popular valuation methods are DCF and relative valuation. The respondents typically use two valuation methods (32% of the respondents), and the EV/EBITDA and P/E ratio are the most preferred multiples (more than 50% of the respondents). Mukhlynina and Nyborg (2016) also conducted a survey of valuation experts, including consultants, investment bankers, private equity professionals, and portfolio managers. Their results show that most respondents simultaneously use multiples and DCF. A total of 47% of the respondents acknowledge that they use both valuation methods, but primarily multiples, and 46% utilize both, but primarily DCF. The authors' results also show that consultants are more likely to use both approaches, whereas private equity professionals are less likely to use both approaches. The most popular multiples are EV/EBITDA, EV/EBITA, EV/EBIT, P/E, and industry-specific multiples. Furthermore, 12-month forward multiples are more preferred to trailing multiples. Pinto et al. (2019) conducted a scientific survey, which focussed on the equity valuation practices of professionals with CFA

designations. The authors come to the conclusion that 93% of the respondents use market multiples in their valuation analyses, 79% use a DCF approach, 61% an asset-based approach, and only 5% use a real options approach.

The literature review implies that institutional investors who intend to generate positive returns from buying and selling securities tend to prefer market-based approaches in their valuation analyses. While some researchers outline the importance of the income approach, relative valuation based on a set of comparable assets appears to be most relevant for their purposes.

5 | EMPIRICAL ANALYSIS

5.1 | Research methodology

As outlined above, the majority of institutional investors appear to prefer multiples over DCF. Our general hypothesis builds on that observation and also assumes that activist hedge funds rely predominately on multiples in their valuation analyses. To further investigate our hypothesis, our analyses focus on the research questions outlined below:

1. Which valuation approaches do activist hedge funds primarily use to value target firms?
2. Do activist hedge funds prefer equity or enterprise value multiples in their analyses?
3. Which specific multiples do activist hedge funds primarily use?
4. Do activist hedge funds make any adjustments to these multiples?
5. Do activist hedge funds prefer forward or backward-looking multiples?
6. Do activist hedge funds use average or median multiples in their valuation analyses?
7. Do activist hedge funds make any adjustments to specific value drivers in the market approach?
8. What profiles do comparable firms have which were applied in the market approach?
9. What results do activist hedge funds derive in their entry and exit valuation analyses?

The data used in our analyses was hand-collected and derived from the original, publicly available activist hedge fund presentations, which were used by the activist investors to communicate their demands in the disciplining stage of their campaigns. Our sample consists of 30 randomly selected hedge fund campaigns, covering the calendar years 2013–2019. In total, 1671 pages of content were analyzed to address the research questions, outlined above. The procedure for evaluating the presentations consisted of two individual steps, namely

(i) reviewing the disciplinary content and documenting the valuation methods used, and (ii) researching the peer companies through further external research on the Bloomberg.

To study the valuation approaches used, we reviewed the valuations performed by the activist hedge funds for entry (entry valuation) and exit (exit valuation), disclosed in their presentations (refer to Section 3 for details on the differences between entry and exit valuation). To study the peer firms used, we first extracted the peer groups and comparable companies from the activist investors' valuation analyses in their presentations. In total, 45 total peer groups and 310 comparable firms were identified, which were subsequently individually studied. To do so, business profiles of the targets were compared to the ones of the comparable companies. This included an analysis of (i) sector affiliation¹ and (ii) products and services offerings. To quantitatively analyze the fit of the peer firms with the target firms in terms of the above mentioned dimensions (i)–(ii), we converted the qualitative data (sector affiliation, products, and services offerings) into quantitative data by coding the results of our analyses to 1 (if the data matched between target firm and each peer firm) and 0 otherwise. This means that every peer firm received either a score of 1 or 0. This allowed us to calculate the average score per peer group per relative valuation performed by the activist investor, or put differently, the percentage of total matches in a peer group. Additional information on the approach is disclosed in the Appendix. The financial profiles of the comparable companies were not analyzed.

5.2 | Research sample

Our sample consists of a diverse portfolio of 30 target firms, which are predominately located in the USA (22 target firms; 73.3% of entire sample), followed by Europe (5; 16.7%), and Asia (3; 10.0%). Figure A1 displays the distribution of the calendar years in which the activist hedge fund campaigns were launched.

The target firms in our sample operate in seven different sectors: consumer (33.3 %); technology, media, and telecom (TMT; 20.0%); industrial (16.7%); healthcare (6.7%); natural resources (10.0%); financial services (10.0%); and real estate (3.3%). The sectors of the target firms are summarized in Table A1.

The 30 different campaigns were carried out by 10 different hedge funds, which are listed in Table A2. While Elliot Management is represented six times in our sample,

¹ Sector categorization of peer firms was based on Bloomberg classifications.

Greenlight Capital and Trian five times each. Additionally, three campaigns each by Pershing Square, Starboard Value, and Third Point are part of our sample. The remaining five campaigns were executed by Engaged Capital, Marcato, and SpringOwl.

5.3 | Results of the analysis

5.3.1 | Valuation conclusions of activist hedge funds

As outlined in Section 3, the returns of an activist hedge fund are driven by a target firm's undervaluation (i.e., difference between its current market price and current intrinsic stand-alone value), as well as by the effects from the value-enhancing strategies the hedge fund pushes for after its investment in the target (i.e., difference between current intrinsic stand-alone value and future firm value including the effects from the executed value-enhancing strategies).

In our 30 hedge fund presentations, we were able to identify 40 individual valuations allowing us to draw conclusions on the current undervaluation of the target from the perspective of the hedge fund, as well as the value enhancement potential from the activist investors' recommended strategies.

We indexed the current observable share price to 100%. Based on the funds' valuation analyses, the median undervaluation of the target firms amounts to 31.2% (see Figure A2). This means that the target firms trade at a discount of 24.8% to their current intrinsic stand-alone values (entry valuations).² The average undervaluation amounts to 39.4% (discount of 28.3% to their current intrinsic stand-alone values).³ Besides a pending undervaluation, activist hedge funds determine a value enhancement potential from their proposed strategies of 69.7% (median) to the target firms' current share price (average of 82.7%). This implies that on average, the return potential from a hedge fund's proposed strategies is approximately twice (2.2×) as large as the assumed undervaluation of the target. This suggests that activist hedge funds assume, on average, a return upside of the target firms of 100.9% (median) compared to their current share prices.

5.3.2 | Intrinsic versus relative valuation

The valuation approaches activist investors apply in the entry stage (entry valuation) are presented in Figure A3.

As indicated in Figure A3, the market approach is used in 76% of the total observations. By contrast, no activist hedge fund used a DCF model (income approach) when determining the value of the target firm at entry. Ranking second was an asset-based approach with one observation (2% of the total observations). Methods and analyses applied by activist investors at entry that are not strictly valuation approaches but still used for similar purposes were included in "other" approaches (22% of the total observations). Methods and analyses reflected in "other" approaches included analyses of total shareholder returns (TSR), ordinary share price levels, stock price performance (in %), and indexed total returns. These analyses do not derive an undervaluation, however show rather an underperformance of the target firm in the past.

In three campaigns, the activist hedge funds did not perform an entry valuation or similar analyses. They rather looked exclusively at the target firms' potential exit valuations once the value-enhancing strategies of the hedge funds would have been fully implemented.

As mentioned previously, we make a distinction between the applied valuation approaches at entry (i.e., entry valuation approach, focusing on a potential undervaluation of the target firm) and at potential exit (i.e., exit valuation approach, focusing on the value enhancement potential once the activist investor has fully achieved his campaign objectives and demands).

Figure A4 confirms that relative valuation is the dominating valuation approach not only at entry but also for the potential exit. In 83% of the total observations, activist hedge funds used the market approach to highlight potential value gains from their involvement in the target firm. Within the relative valuation, sensitivity analysis occurred seven times, and the sum-of-the-parts valuation once. Observations that are not valuation approaches but are used for similar purposes were included in "other" approaches (17% of the total observations). These comprise accretion/dilution, IRR, and TSR analyses. In 16 of the 30 analyzed campaigns, the activist hedge funds did not perform an exit valuation. The results clearly state that not every activist investor performs an exit valuation. It appears that identifying a potential undervaluation of the target firms is of greater importance to the activists than estimating potential value gains from their involvement.

Table A3 shows how often an activist hedge fund used different types of multiples for their entry valuation. A variation of a multiple can be a difference in the denominator or numerator. For example, EV/EBITDA and EV/EBIT are defined differently as the value drivers are different. "One multiple" indicates that the investor does not use several variations but relies on only one specific multiple. As presented in Table A3, activist hedge funds mostly use either one multiple (38% of total observations) or two multiples

² i.e., $0.312/1.312 = 0.248\%$.

³ i.e., $0.394/1.394 = 0.283\%$.

(38 % of total observations) for the target's entry valuation. Moreover, three multiples comprised 14% of the total observations, and four and eight multiples each constituted 5% of the total observations.

Table A4 shows the number of variations of multiples that an activist investor used to present the value creation potential from his proposed strategies. In contrast to Table A3, the majority used one specific multiple (85% of the total observations), and three and six multiples occurred only once, each, in the data set.

5.3.3 | Characteristics of peer firms

When activist investors apply the market approach in their entry or exit valuations, they usually use the same peer group. The observed number of comparable companies in these cases are presented in Figure A5.⁴ Based on our analyses, hedge funds rely in their valuation analyses predominately on five to seven peer firms. In more detail, 11% of the valuation analyses were based on five peer companies, 20% on six peer companies, and 18% on seven peer companies. The weighted mean over the entire sample amounts to 6.4 comparable companies per peer group.

In 19 cases, no information on peer firms was disclosed. These analyses relate to benchmarking the target's past performance against the current performance either by using a single multiple (for example an industry average or a blended multiple with no further information on the number of peer firms) or by using other performance metrics unrelated to the market approach. Therefore, the absence of comparable firms in the presentations does not mean that activist hedge funds did not use data from comparable firms in their analyses.

The sources of information on the market prices for the market approach are presented in Figure A6.⁵ In 83% of the cases, activist hedge funds relied on actual share prices of peer firms from which trading multiples were calculated and used to price the target firm. In 18% of the cases, prices from completed control transactions were used from which deal multiples were calculated and used to price the target. A total of 24 observations were excluded due to missing information which did not allow us to analyze the source of the prices used or other information that was used for pricing the target firm. Other information includes predominately information on target prices from equity research reports or analyst recommendations.

To understand the goodness of fit of the peer firms, which were used by the activist investors in the market approach, we studied whether the comparable companies operate in the same sector as the target firm. If a peer firm is part of the same sector as the target, it was coded as 1 and 0 otherwise. Based on our classification, an average across all peer firms per peer group was calculated. A score of 100% implies that all firms in the peer group belong to the same sector as the target firm. A score between 0% and 100% implies that not all firms in the peer firm are part of the same sector as the target. A score of 0% means that no comparable firm operates in the same sector as the target.

In 57% of the cases, only peer firms from the same sector (score = 100%) were used, in 34% of the cases, comparable firms from other sectors ($0 < \text{score} < 100\%$) were also included in the peer group. Surprisingly, in 9% of the cases, activist hedge funds used peer groups in which no peer firm operated in the same sector as the target (score = 0%).⁶ The mean score of the peer group fit based on sector affiliation of the peer firms is 79% (with a median of 100%). The distribution of our analyses on the sector affiliation is illustrated in Figure A7.

Besides sector affiliation, we also studied whether comparable companies offer the same or highly similar products or services as the target firm. In 43% of the cases, all comparable companies in a peer group fully matched a target's products or services (score = 100%). In 46% of the cases, hedge funds included peer companies who offer products and services that are not fully comparable to those of their targets ($0 < \text{score} < 100\%$). In only 11% of the cases, companies were used that offered different products or services to those of their target firms (score = 0%). The distribution of the observations is displayed in Figure A8. The mean value of the distribution is 65%, with a median of 73%. This implies that in 2 out of 3 valuation analyses, activist investors included only comparable companies which offer the same products or services as the target firms, and in 35% of the cases companies with other products and services were used.

Our analyses show that activist hedge funds predominantly choose peer firms which are located in the same country as the target firms (Figure A9), which is an economically sound selection criterion as trading multiples are partly influenced by the prevailing and expected fundamentals of the economy in which they operate (i.e., GDP growth expectation, inflation, interest rates).

In 36% of the cases, the comparable firms are located in the same country as the target (score = 100%). In 48% of the valuation analyses, the hedge funds also used comparable firms located in other countries ($0 < \text{score} < 100\%$). In

⁴ In this analysis no differentiation between entry and exit valuation is made.

⁵ In this analysis no differentiation between entry and exit valuation is made.

⁶ Three peer groups had to be excluded from the analysis due to missing or incomplete data.

17% of the cases, only foreign countries were selected (score = 0%). The mean value of the distribution is 62%, with a median of 81%. This means that in 62% of the cases, activist investors used comparable companies located in the same country as the target.

5.3.4 | Enterprise value versus equity value multiples (multiple numerator)

Do activist hedge funds prefer using equity or enterprise value multiples? As indicated in Table A5, enterprise value multiples and equity value multiples were almost equally applied by activist hedge funds when valuing target firms. In the initial analysis in Table A5, no differentiation between entry and exit valuations was made. This means that these results are based on all valuation analyses performed by the activists in their presentations. In total, enterprise value multiples were applied in 54% of the cases, and equity value multiples in 46% of the valuations.

A closer look at the data reveals however a difference in the application between the entry and exit valuations. The results in Table A6 are based exclusively on entry valuation analyses. One can observe that in 50% of the cases, an equity value multiple was used to value the target. The same holds true for the application of an enterprise value multiple.

By contrast, the results in Table A7 are based exclusively on exit valuation analyses. In only 37% of the cases, an equity value multiple was used, whereas in 63% of the cases, an enterprise value multiple was utilized. This means that although hedge funds do not show a clear preference in their entry valuations, they appear so in their exit valuations. We believe that this has to do with the purpose of these two valuation analyses. While in the entry valuation, the activist hedge fund wants to prove that the target firm is underperforming and undervalued based on a variety of value drivers (i.e., Sales, EBITDA, EBIT, Net income), the exit valuation is intended to outline the value creation potential of the proposed measures. By selecting one multiple which leads to one valuation conclusion, the clear message of a value creation potential is easier to convey. Besides, it has been proven empirically that certain enterprise value multiples better explain observable prices on capital markets than certain equity multiples.

5.3.5 | Value driver (multiple denominators)

Every multiple represents the ratio of an enterprise or equity value and a corresponding value driver. But which multiples do activist hedge funds use most of the time?

To answer this question, we studied the applied multiples including the corresponding value drivers in the valuation analyses of the hedge funds' presentations. The multiples which were used most frequently are presented in Figure A10. Activist hedge funds relied predominantly on EV/EBITDA and P/E in their entry and exit valuations (40% of the cases each). EV/EBIT (8%) and the EV/revenue (6%) contributed only to a smaller extent in our sample. This also holds true for the multiples P/BV (3%), EV/cash flow (2%), and P/m² (2%).

As outlined above, our sample consists of 30 different campaigns, targeting firms from seven different sectors. Table A8 documents the high relevance of the EV/EBITDA and P/E multiples across the sectors represented in our sample. Both multiples were observable in the valuation of target firms that belong to 6 of the 7 sectors represented in our sample (86% of all sectors). All other multiples individually cover less than 30% of all sectors. Surprisingly, the EV/EBIT multiple was only observable in one sector. The EV/revenue and P/B multiples in two sectors each, and the P/m² and EV/cash flow multiples only in one sector each. The data indicate that these multiples are used in specific cases only.

5.3.6 | Multiple adjustments

Information on adjustments to the multiples used in the valuation of target firms was highly limited. Nevertheless, we identified 12 cases in which the activist investors made adjustments to the multiples subjectively to increase the comparability of target and comparable companies. The particular items which were excluded to increase the comparability are presented in Figure A11. In 42% of the identified cases, non-relevant business units were excluded, and in 25% of the cases, the book value of cash items. Additionally, in 17% of the cases, the value effects from short-term financial instruments and short-term marketable securities were adjusted in the valuation analyses.

5.3.7 | Forward- versus backward-looking multiples

To derive the value of a firm based on the market approach, one can select a historical, backward looking or estimated, forward looking value driver (i.e., sales, EBITDA, EBIT, Net income). This then translates into a so-called forward-looking or backward-looking multiple. Based on the hedge fund presentations, we collected 58 multiples for which we could analyze whether they were based on backward or forward-looking value drivers.

Our analyses reveal that activist hedge funds have a clear preference for forward-looking multiples. In 72% of the cases, the valuation analysis was based on these multiples. In only 28% of the cases, backward-looking multiples were applied. The percentages of the cases in which forward- or backward-looking multiples were applied are summarized in Figure A12. As the value of a firm is based on the future financial performance rather than on the historical performance, we consider this methodology reasonable.

5.3.8 | Sources of value drivers

The sources of the projected value drivers used in the market approach are listed in Table A9. This information was disclosed in 11 hedge fund presentations and subsequently analyzed. In 64% of the cases, consensus estimates were used to value the target firm. Broker estimates were the basis in 27% of the valuation analyses. In only 9%, the hedge funds relied on own estimates in their valuations. Therefore, the estimates of the value drivers are predominately sourced from external parties which have a history in following the target firms. Two consensus estimates were sourced from Bloomberg and from FactSet, each. In all other presentations, this information was not provided.

5.3.9 | Average versus median multiples

The statistics that were applied to value the target firms are provided in Figure A13. In 76% of the cases, activist hedge funds used the average/mean multiple in their valuations. In 15% of the valuation analyses, the median multiple was used. In 9% the valuation conclusion was based on a weighted average. The data indicate that the average/mean is the most preferred statistic.

6 | DISCUSSION OF RESEARCH FINDINGS

The results reveal that the market approach is clearly the leading valuation method of activist hedge funds. Activist investors apply the market approach both to assess a potential undervaluation at entry (entry valuation) and to estimate the potential impacts from their value creating strategies and demands (exit valuations) (Figures A3 and A4). Earlier studies on institutional investors with similarities to activist hedge funds also identified market-based approaches as the preferred valuation methodologies (Gompers et al., 2015; Lockett et al., 2002; Manigart et al., 2000; Vydřel & Soukupová, 2012). The results of our analyses are therefore consistent with previous studies.

Investors can be categorized into short- and long-term investors with corresponding investment horizons. Long-term investors try to identify undervalued firms based on their economic fundamentals. Short-term investors, like for example activist hedge funds, are rather interested in finding target firms that are currently mispriced in relation to their publicly listed competitors. By doing so, short-term investors can identify under- or overvalued firms in comparison to similar firms based on their current or forecasted financial performance in the near future. In this respect, relative valuation approaches based on trading multiples are preferred, whereas investors with a long time investment horizon appear to have a preference for discounted cash flow-based valuation methodologies. Our findings confirm our hypothesis that activist investors apply the market approach due to their relatively short investment horizon.

When activist hedge funds perform valuations, they typically rely on one or two multiples (Tables A3 and A4). We hypothesise that the selection of a very limited amount of multiples helps activist investors conveying their key messages (current undervaluation and value enhancement potential from their demands). A set of diverse multiples would create a bandwidth of results, posing the question which results are the most robust. Further, we believe that activist hedge fund investors are highly sophisticated valuation professionals who are extremely careful with what information they disclose in their presentations. We believe that hedge fund investors are aware of the fact that certain multiples explain market value much better empirically than others (EV/EBITDA and P/E) impacting their selection of disclosed multiples.

Typically, comparable companies used in the market approach should be similar to the valuation subject in terms of its risk profile, growth expectations, and cash flow drivers. When activist hedge funds use comparable firms, they typically choose five to seven peer companies (Figure A5). In any industry, the number of highly comparable firms is limited. Consequently, there is a natural upper limit of peer firms which can be used. Increasing the number of peer firms beyond a certain point will reduce the accuracy of the valuation results as firms will be added that might not be fully comparable. It is interesting to observe that peer groups with a very small number of peer firms occur rarely. We believe that activist hedge funds do not want to make the impression that they arbitrarily selected one or two firms which serve their undervaluation narrative in an extreme way and therefore might reflect negatively on the quality of the valuation once discussing their results with shareholders or the target's board of directors.

The pricing of comparable companies is typically derived from quoted prices or stock prices (83% of the

observed cases). In only 18% of the observations, completed transactions were used to price the target firm (Figure A6). Although standing in contrast to the findings of Vydržel and Soukupová (2012) who observed that institutional investors in their sample (PE funds) rely on deal multiples more often than on trading multiples, we argue that our results are absolutely plausible. This is due to the fact that activist investors typically acquire minority stakes (5%–10% of shares outstanding) and not controlling stakes as PE funds do (Boyson & Mooradian, 2011; Brav et al., 2008; Katelouzou, 2013). In those rare cases where transaction multiples were used to price the target, the activist hedge fund assumed a potential sale of the whole target firm in their exit valuation, which represents an exit opportunity of the hedge fund.

Activist hedge funds mostly define comparable firms in a rather conventional manner. The conventional approach involves the selection of comparable companies with company/business profiles that are similar to that of the target company. The implicit assumption in this approach is that peer companies share similar risk, growth, and cash flow profiles with the target firm (Damodaran, 2002). Therefore, our results are initially not surprising. In 79% of the cases, peer group firms operate in the same sector as the target (Figure A7). In 65%, those peer firms offer the same or highly similar products or services as the target (Figure A8).

Our results imply that the sector classification of the peer firms appears the most important selection criteria for the hedge funds when performing valuation analyses. However, we would have assumed that all peer firms operate in the same sector (industry) as the target firm. We would have expected as well that all peer firms offer highly similar products and services as the target firms. This nevertheless is not the case, as our findings reveal. While this is partly surprising, our results document the shortcomings of the conventional approach of selecting peer firms in practice. While hypothetically, one would like to apply a peer group that matches all key qualitative characteristics of the target, due to a limited availability of the same this is almost impossible in practice. Nevertheless, our results document that activist hedge funds place the greatest emphasis on sector affiliation when selecting peer firms.

Our results also document that in the market approach, activist investors rely predominately on firms headquartered in developed countries (Figure A9), corresponding in most of the cases to the countries in which the target firms are located. As our sample is predominately made up of target firms in the United States and the European Union, peer firms are also primarily selected from these countries. We argue that this procedure is reasonable as general macroeconomic conditions like (expected)

inflation, interest rates and GDP growth are country dependent, and therefore also influence the risk, growth expectations, and cash flows drivers of the firms located in these regions. In 60% of cases, comparable companies were selected from the same country as the target firm. We believe that this is due to a limited availability of comparable firms with similar business models as the target.

In the analyzed entry valuations, enterprise and equity value multiples were used to the same extent. In the exit valuation analyses, however, enterprise value multiples are more common (Tables A5, A6, and A7). We believe the preference for different multiples is based on the different purposes of the valuations analyses. In the entry valuation, the activist hedge fund intends to argue for a general undervaluation of the target firm based on various multiples dimensions. In the exit valuation, the activist is more concerned about outlining the value creation potential emerging from its proposed demands. In the exit valuation, we argue the activist hedge fund intends to select the multiple that best explains the market value of the target firm.

For the purpose of communicating a general undervaluation, a variety of different multiples is used by the hedge funds. To outline the value creation potential, however, activist investors appear to prefer a single multiple (a single multiple was used in 85% of analyzed exit valuations). That different multiples differ with regards to their valuation accuracy has been documented widely in academia. Therefore, a reason for selecting a single multiple could be that hedge funds aim for the multiple that best explains the market value of a firm. According to Chullen et al. (2015), EBITDA multiples have the highest valuation performance, followed by EBIT, and net income. For this reason, the selection of enterprise value multiples with the highest valuation accuracy, such as EV/EBITDA and EV/EBIT, is a sensible approach. Besides their valuation accuracy, the preference for certain multiples could also be related to the significant relevance of certain multiples to investors for valuing equities observed historically (Rutterford, 2004).

Previous studies on other institutional investors like venture capital and private equity funds reveal that EV/EBITDA, EV/EBIT, and P/E are the prevailing multiples (Arnold & Moizer, 1984; Bancel & Mittoo, 2014; Fouche & van Rensburg, 1999; Freeman & Bartels, 2000; Imam et al., 2008; Lockett et al., 2002; Manigart et al., 2000; Mukhlynina & Nyborg, 2016; Vydržel & Soukupová, 2012). Our results correspond to the findings of the majority of previous studies. In the analyzed valuations, we observed that activist hedge funds rely predominately on the P/E and EV/EBITDA multiples (40% of all cases each) when valuing target firms (Figure A10).

Overall, our reported results on the usage of P/E and EV/EBITDA multiples are, however, lower than those of Pinto et al. (2019), who surveyed the usage of various multiples by brokerage firms, hedge funds, investment banks, and investment management firms on a large scale globally. Pinto et al. (2019) show that the P/E and the EV/EBITDA multiples have the highest utilization in practice (67% and 61%), without separately disclosing the results for the hedge funds industry.

In some cases, we could observe that activist hedge funds adjusted trading multiples subjectively and partly arbitrarily in their valuation analyses (Figure A11). This occurred, however, only in 12 of the analyzed cases. The adjustments were made exclusively in the hedge funds' entry valuations, in which, as outlined before, the activist investor intends to highlight a material undervaluation of the target firm compared to its peers. In 42% of these 12 cases, non-core or non-relevant business units were excluded in the derivation of the market value implied trading multiple of a target firm. This was typically done by adjusting the market value and a corresponding earnings figure (by which the market value got divided). By doing so, the hedge fund aims at eliminating the effects of those business units on the multiple. In another 25% of the observed cases with adjustments, the effects from material cash balances were excluded in the trading multiples calculations. The "ex-cash" adjustment was predominately found for target firms with significant excess cash balances, being reflected in the market capitalization of the firm. In 17% of the observed adjustment cases, the effects of short-term financial instruments and short-term marketable securities were amended in the calculation of the market value implied multiples of the target firms.

While activist hedge funds adjust for the effects of the assets subjectively and partly arbitrarily in the calculation of the market value implied multiples, we consider these adjustments meaningful and productive. We are of the opinion that these adjustments allow for a meaningful comparison between the target firm and its peers in case the target firm and its peers do not share the same asset compositions (e.g., firms with material excess cash and cash equivalents or other non-operating assets). When calculating trading multiples, we advocate for excluding the effects of non-operating assets in the numerator and denominator of the multiple, as non-operating assets do not constitute a part of a firm's core business and therefore will not materially drive a firm's value in the future.

Our results reveal that forward-looking multiples are more preferred than backward-looking multiples by activist hedge funds (Figure A12). This finding is in line with the results of Liu et al. (2002) who examined a comprehensive list of value drivers, documenting that multiples derived from forward-looking earnings more

adequately explain stock prices than multiples based on historical earnings measures. As the value of a firm is a function of its future financial performance, we argue that our results confirm general valuation theory. Data on the predicted performance measures used in the valuations are mostly sources from external providers (Table A9), and not internal estimates of the hedge funds. We argue that this approach allows activist investors to reduce the inherent subjectivity of their valuation conclusions, making their results stronger when communicating them to the target firms' internal and external stakeholders.

In our sample, we observe that in the market approach the average (arithmetic mean) is the most preferred measure of central tendency (Figure A13). In theory, the average/mean can be more severely impacted by outliers than the median of a data set (IFRS Foundation, 2012). This means that valuation accuracy based on the median would be higher than that of the arithmetic mean. We argue that the application of the average (arithmetic mean) is warranted as the activist hedge funds typically spend significant time on finding highly suitable peer firms, as our results on the goodness of fit of the peer groups show (sector affiliation, and products and services). By already using a set of highly comparable peer firms, the median's advantages decrease as the chances of including firms that are not fully comparable decreases as well. Consequently, we argue that the results of earlier studies that looked at the valuation accuracy of the arithmetic mean in comparison to the median are not translatable to our results as highly comparable firms have already been selected.

7 | PRACTICAL IMPLICATIONS

This article provides insights on how activist hedge funds identify and value target firms, as well as how they measure the value creation potential of their investment strategies. We believe that our results could be of interest for a range of professionals and institutions including senior executives and stakeholders of target firms, as well as professionals in the investment banking and corporate finance industry.

Firstly, our insights can be used by senior executives of public corporations to understand whether there is an increased risk of a potential activist campaign. By knowing how hedge funds identify target firms and measure the value creation potential, senior executives can prepare in advance for a potential hostile encounter with an activist or even implement changes upfront so that the likelihood of an activist campaign decreases. In case senior executives are unaware of an increased risk, finance professionals in the investment banking industry can use our results to identify public firms potentially becoming future targets of

activist investors and support them in their value creation activities (including capital structure advisory and M&A) (Alexandridis et al., 2017; Bao & Edmans, 2011). Alternatively, investment banks can also identify potential targets and suggest them to their hedge fund clients to establish and further strengthen their client relationships (Bowers & Miller, 1990). Once established, investment banks can sell add-on services including trade execution and prime brokerage (at entry) and M&A (during a hedge fund's holding period) to their hedge fund clients. Furthermore, the change in a target company's stock price upon announcement of a campaign indicates that value is expected to be either created or destroyed. Research departments in investment banks can revalue and update their models for stocks they cover, which are targets of activist campaigns, to support their recommendations (Womack, 1996).

Our results also indicate that hedge funds frequently overestimate the value creation potential which they disclose in their presentations. Our results on anticipated returns stand in contrast to the actual, long-term returns these investments generate (Swanson et al., 2022). Shareholders and other stakeholders should therefore be careful not to confound the return potentials with the actual returns of these strategies. Pushing for changes in target companies might result in returns that are substantially smaller than what was disclosed in those presentations.

8 | CONCLUSION

This research study described how activist hedge funds perform valuations on their targets. Our analyses focused on actual hedge fund presentations from 2013 to 2019 and were based on a sample of 30 hedge fund campaigns. (Table A10)

The results imply that activist hedge funds tend to use the market approach in their entry and exit valuations and not the income approach (DCF). With regard to the usage of various multiples, activist hedge funds predominately use several multiples in their entry valuations to display a potential undervaluation but mainly utilize one multiple in their exit valuations showing the impact from their value creating objectives which they intend to implement during their holding period.

Their peer groups are primarily derived from companies operating in similar sectors, and consist of six comparable firms on average. Activist hedge funds adopt conventional means of selecting comparable firms and usually choose them from firms headquartered in developed countries to prevent the inclusion of non-identical comparable companies. The law of one price adequately explains this phenomenon.

We observed that enterprise and equity value multiples get equally applied in the entry valuations, but enterprise value multiples appear to be preferred in the exit valuations. Activist hedge funds mainly use one multiple in the exit valuations. We hypothesise that a single, accurate value is likely more easily to communicate to shareholders and the management team than using several multiples deriving several value conclusions. The leading multiples are EV/EBITDA and P/E, and are used across most sectors. Nevertheless, specific multiples also exist across different sectors. Multiples such as EV/revenue, P/B, EV/cash flows, and EV/EBIT are only applied in specific, rare cases.

Additionally, the multiples are predominately forward-looking, and the predicted performance measures (i.e., value drivers) are primarily consensus estimates. Moreover, the average/mean of multiples is chiefly used. Hedge funds sometimes adjust these multiples to increase the comparability. A clear statement on the adjustment of performance measures cannot be made due to a lack of information.

Prior studies on activist hedge funds indicate an investment horizon of one to two years on average. Due to their short-term holding period, we hypothesized that the usage of the market approach is preferred for valuating target firms. Our results on the domination of the market approach clearly support our hypothesis. Previous studies on valuation methodologies applied by institutional investors correspond to the results of our study. This means that similar investors with similar investment horizons apply similar valuation practices.

This study provides further information to previous studies on activist hedge funds and contributes important knowledge to the current state of research not only on hedge fund activism but also on valuation practices.

DATA AVAILABILITY STATEMENT

Data are from public sources specified in this study.

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APPENDIX

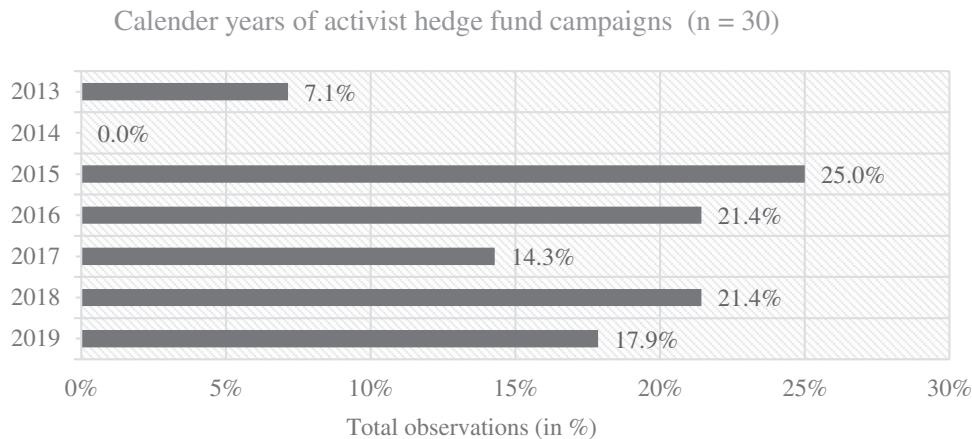


FIGURE A1 Sample distribution of calendar years of activist hedge fund campaigns.

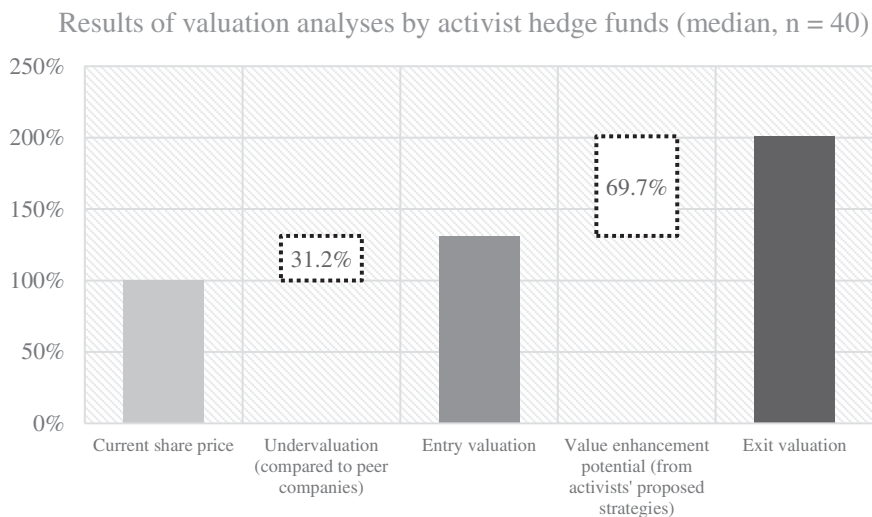


FIGURE A2 Valuation results of activist hedge funds.

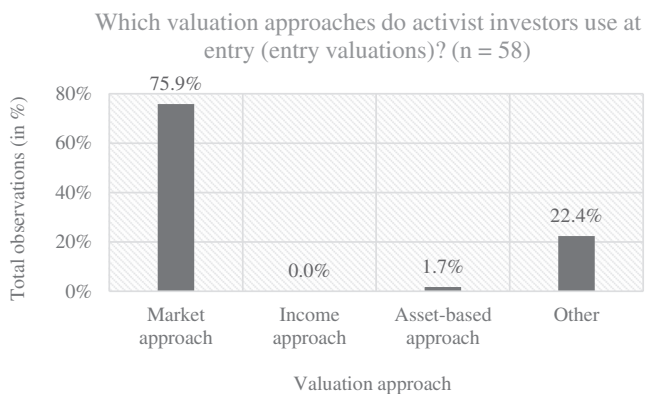


FIGURE A3 Valuation approaches at entry.

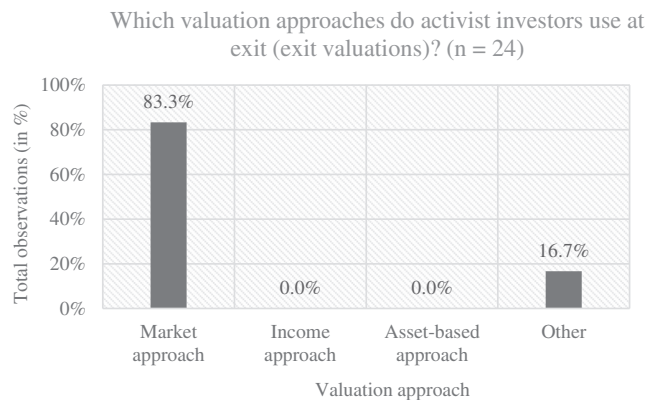


FIGURE A4 Valuation approaches at exit.

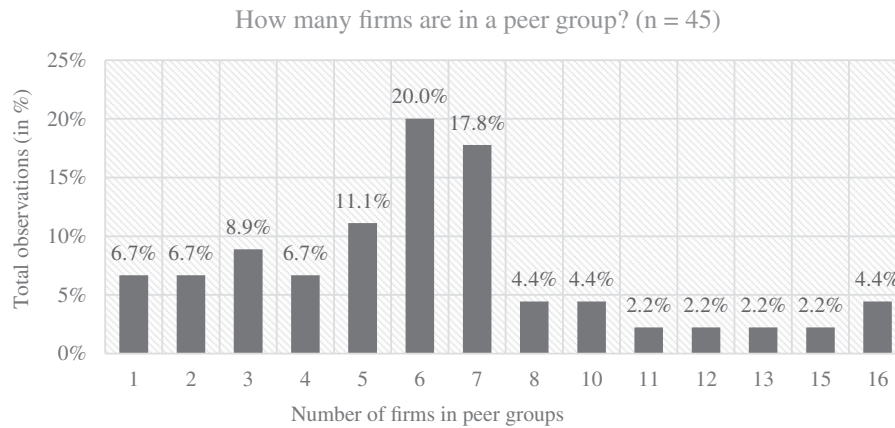


FIGURE A5 Number of firms in peer groups.

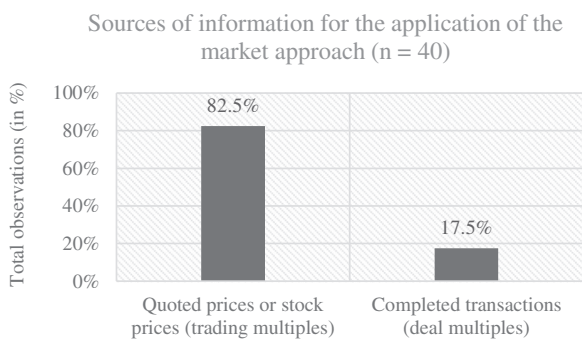


FIGURE A6 Source of information for market approach.

TABLE A1 Sectors of target firms.

Sectors	Number of presentations	Total number of presentations (in %)
Consumer	10	33.3
TMT	6	20.0
Industrial	5	16.7
Financial services	3	10.0
Natural resources	3	10.0
Healthcare	2	6.7
Real estate	1	3.3
Total	30	100

Abbreviation: TMT, technology, media, and telecom.

TABLE A2 Selected hedge funds and their presence in the sample.

Hedge funds	Number of presentations	Total number of presentations (in %)
Elliott Management	6	20.0
Greenlight Capital	5	16.7
Triam	5	16.7
Pershing Square	3	10.0
Starboard Value	3	10.0
Third Point	3	10.0
Sandell	2	6.7
Engaged Capital	1	3.3
Marcato	1	3.3
SpringOwl	1	3.3
Total	30	100

TABLE A3 Number of multiples for entry valuation.

If multiples are used for the entry valuation, how many variations are applied?	Number of observations	Total observations (in %)
One multiple	8	38.1
Two multiples	8	38.1
Three multiples	3	14.3
Four multiples	1	4.8
Eight multiples	1	4.8
Total	21	100

Do comparable companies operate in the same sector as the target?
(n = 44)

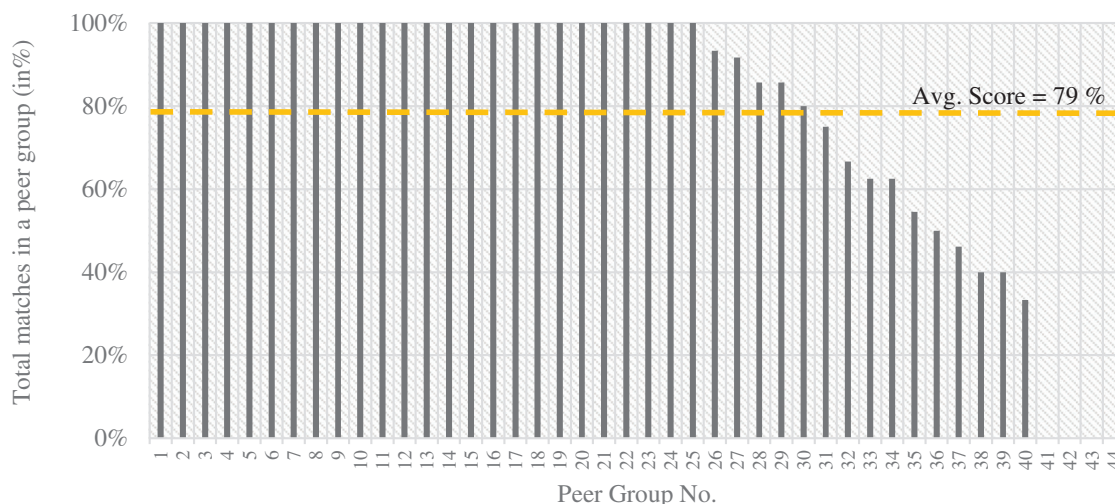


FIGURE A7 Sector affiliation of comparable firms. Line: Arithmetic average.

Do comparable firms offer the same products or services as the target?
(n = 44)

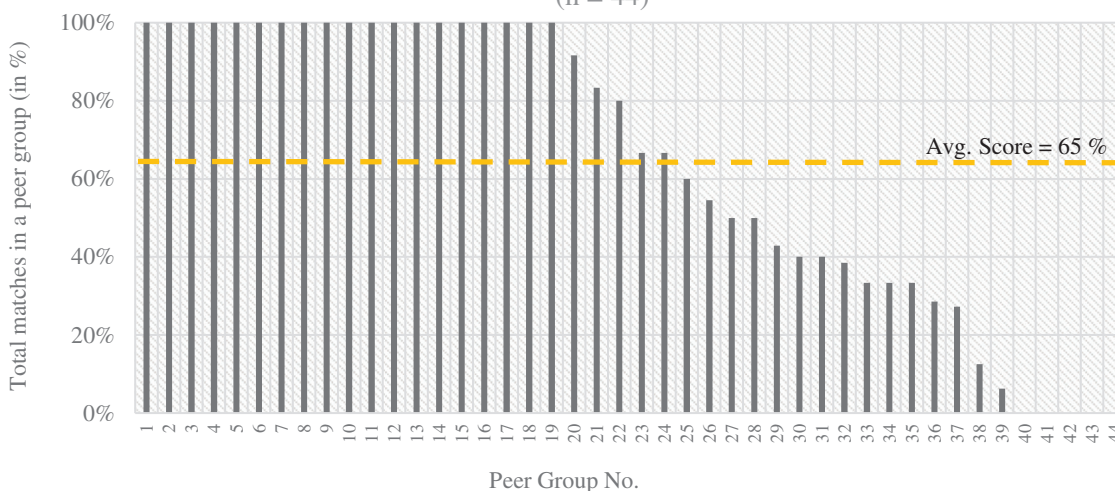


FIGURE A8 Products and services offerings of comparable firms. Line: Arithmetic average.

TABLE A4 Number of multiples for exit valuation.

If multiples are used for the exit valuation, how many variations are applied?	Number of observations	Total observations (in %)
One multiple	11	84.6
Three multiples	1	7.7
Six multiples	1	7.7
Total	13	100

TABLE A5 Enterprise versus equity value multiples (all valuation analyses).

Are valuation analyses by activist hedge funds based on enterprise or equity value multiples?	Number of observations	Total observations (in %)
Enterprise value	34	54.0
Equity value	29	46.0
Total	63	100

Are the comparable firms located in the same country as the target?
(n = 44)

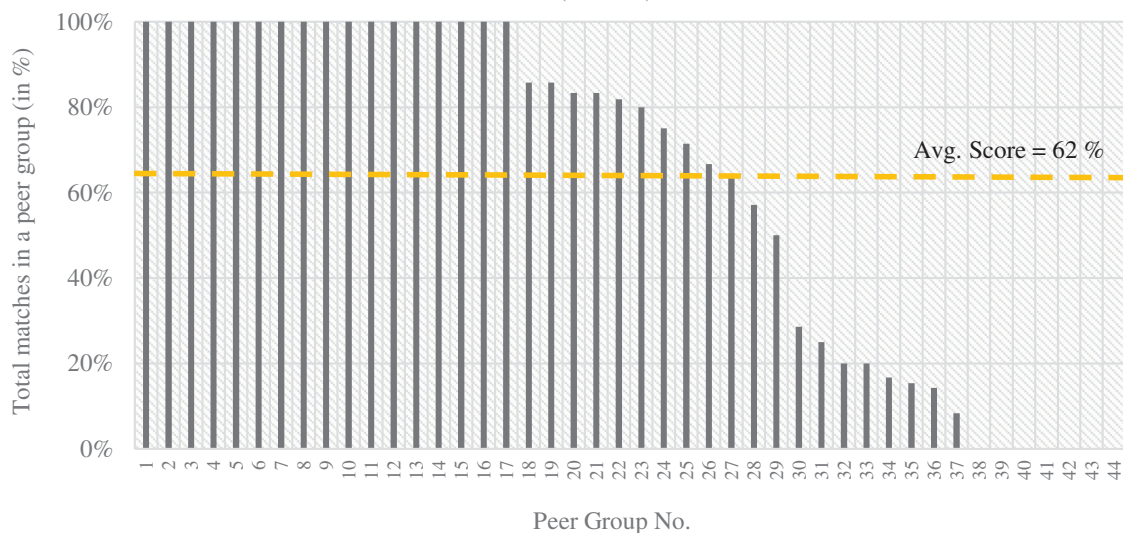


FIGURE A9 Home country of target versus foreign countries. Line: Arithmetic average.

Which multiples do activist hedge funds use when valuing target firms? (n = 65)

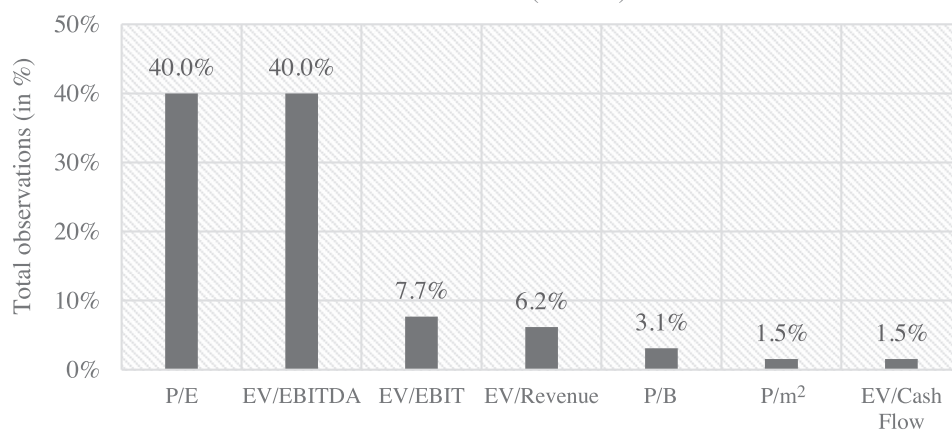


FIGURE A10 Multiples applied by activist hedge funds.

TABLE A6 Enterprise versus equity value multiples (entry valuation analyses only).

What is in the numerator of the multiple in the entry valuation?	Number of observations	Total observations (in %)
Enterprise value	22	50.0
Equity value	22	50.0
Total	44	100

TABLE A7 Enterprise versus equity value multiples (exit valuation analyses only).

What is in the numerator of the multiple in the exit valuation?	Number of observations	Total observations (in %)
Enterprise value	12	63.2
Equity value	7	36.8
Total	19	100

Which adjustments of multiples did activist hedge funds make to increase the comparability of target and comparable companies? (n = 12)

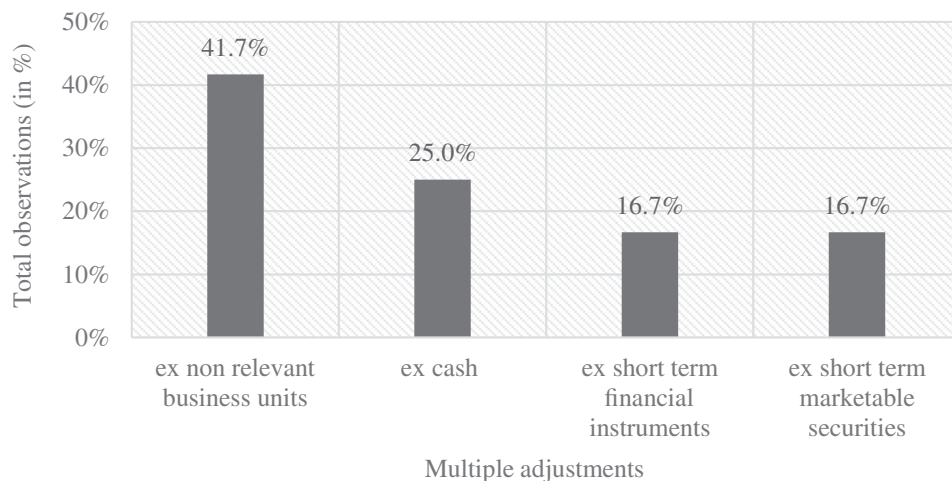


FIGURE A11 Adjustments of multiples by activist hedge funds.

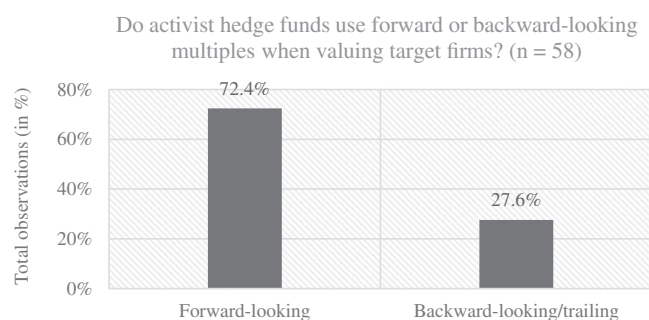


FIGURE A12 Application of forward- and backward-looking multiples.

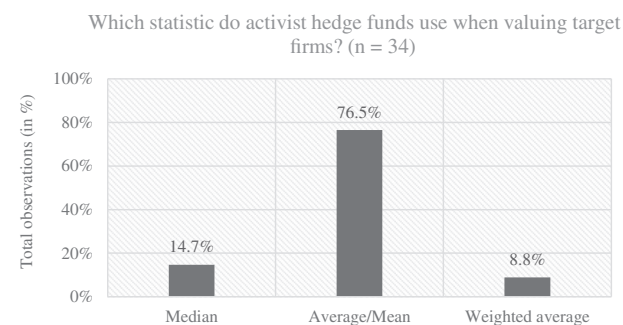


FIGURE A13 Median versus average multiples.

TABLE A8 General and specific multiples.

In how many sectors were certain multiples used by activist hedge funds to value a target firm?	Number of sectors	Total number of sectors (in %)
EV/EBITDA	6	85.7
P/E	6	85.7
EV/revenue	2	28.6
P/B	2	28.6
EV/cash flow	1	14.3
EV/EBIT	1	14.3
P/m ²	1	14.3
Total number of sectors	7	

Abbreviations: EV, Enterprise value; EBITDA, Earnings before interest, taxes, depreciation, and amortization; EBIT, Earnings before interest and taxes; P/E, Price/Earnings; P/B, Price/Book; P/m², Price/Square meter.

TABLE A9 Sources of projected value drivers.

What is the source of the value drivers used by activist hedge funds to value target firms?	Number of observations	Total observations (in %)
Consensus estimates	7	63.6
Brokers' estimates	3	27.3
Hedge fund's own estimates	1	9.1
Total	11	100

TABLE A10 Sample of activist investors campaigns and presentations.

Campaign No.	Fund	Year	Sector	Target	Page count of presentation
1	Elliott Management	2018	Industrial	Hyundai	43
2	Pershing Square	2018	Consumer	Starbucks	42
3	Third Point	2018	Consumer	Nestle	33
4	Third Point	2019	TMT	Sony	102
5	Trian	2017	Consumer	Procter & Gamble	93
6	Greenlight Capital	2016	Healthcare	Bayer	48
7	Elliott Management	2016	TMT	Samsung	31
8	SpringOwl	2015	TMT	Yahoo!	99
9	Trian	2015	Industrial	General Electric	80
10	Trian	2015	Consumer	Heinz	7
11	Pershing Square	2013	Consumer	Procter & Gamble	44
12	Greenlight Capital	2013	TMT	Apple	54
13	Starboard Value	2019	Healthcare	Bristol-Myers	197
14	Elliott Management	2019	Natural resources	Marathon Petroleum	45
15	Trian	2019	Industrial	Ferguson	23
16	Elliott Management	2019	TMT	Telecom Italia	40
17	Trian	2018	Industrial	PPG Industries	41
18	Third Point	2018	Consumer	Campbell	45
19	Greenlight Capital	2018	Financial	Assured Guaranty	63
20	Marcato	2017	Consumer	Deckers Outdoor	58
21	Pershing Square	2017	TMT	ADP	167
22	Greenlight Capital	2017	Natural resources	Core Laboratories	63
23	Sandell	2016	Consumer	Bob Evans	18
24	Engaged Capital	2016	Consumer	Outerwell	32
25	Elliott Management	2016	Financial	Bank of East Asia	22
26	Starboard Value	2016	Consumer	Macy's	27
27	Sandell	2015	Real estate	Brookdale	18
28	Greenlight Capital	2015	Natural resources	Consol Energy	80
29	Elliott Management	2015	Financial	American Capital	33
30	Starboard Value	2015	Industrial	Advanced Auto Parts	23
Total					1671

Abbreviation: TMT, technology, media, and telecom.