Competing for Narrative Authority in Capital Markets: Financial Analysts vs. Activist Short Sellers

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ABSTRACT

This study aims to better understand narrative challenges surrounding legitimate expertise in capital markets. Specifically, we examine how activist short sellers (AShSs), by producing a negative (counter) investment narrative, challenge sell-side financial analysts' narrative authority (i.e., the perception that they produce expert knowledge) in interpreting firms' performance and future prospects. We investigate how financial analysts respond to this challenge in frontstage and backstage activities. We use 442 activist short sellers' reports, 12 interviews with AShSs and financial analysts, and we mobilize mixed research methods. We find at least one explicit attack against financial analysts in 146 reports. In their attacks, AShSs frequently frame financial analysts as lacking market expertise and critical thinking. 66% of financial analysts, although explicitly attacked in short sellers' reports, do not engage in visible frontstage responses in their equity research report but sometimes engage in backstage activities. However, 34% of financial analysts respond by counter-framing AShSs as also lacking market expertise and lacking objectivity. Finally, we show that after the dissemination of AShSs' reports, financial analysts, on average, do no revise their highly visible stock recommendations (frontstage activity), while revising their target prices downward (backstage activity).

Keywords: Activist short sellers; expertise; backstage/frontstage activities; financial analysts; framing theory

1. Introduction

Expertise is a hallmark of contemporary society. Research indicates, though, that complex dynamics surround the development and legitimation of expertise, including professional expertise (Robson & Cooper, 1990; Reed, 1996; Freidson, 2001; Collins & Evans, 2007; Collins, 2010). Contests surrounding expertise take place, notably, through the elaboration and propagation of narratives or texts aiming to enroll audiences into claims to expertise (Sikka & Willmott, 1995).

The setting we examine in this paper is characterized by a challenge of the legitimate expertise of financial analysts taking place in the capital market arena. Our study undertakes a sociologically-informed examination of a contest for authority and expertise regarding the interpretation of firms' performance and future prospects, through an in-depth approach (Power & Gendron, 2015). In addition, we rely on quantitative analyses to carry out part of our in-depth examination, therefore illustrating the role that quantification can take as a meaningful support in qualitative research (Everett, Neu, Rahaman & Maharaj, 2015). As such, our mixed approach provides insight into an unappreciated aspect of capital market dynamics, namely how influential market players seek to promote and defend their respective claims to expertise in the eyes of their audience.

The jurisdictional contest we examine opposes AShSs to financial analysts – particularly regarding their respective claim to expertise in interpreting meaningfully corporate disclosures and the continuous flow of information produced on companies. These influential actors are very different but are both producers of meaning and predictions about uncertain future market developments for other market participants. Our research is coherent with the emerging study of narratives, which focuses the analytical gaze on the role of texts and narratives in current finance (Holmes, 2009; Appadurai, 2011; Leins, 2018, 2020).

Our broad objective is to better understand the dynamics surrounding expertise contests in capital markets. We examine written documents such as "research reports" (prepared by AShSs) as well as sell-side financial analysts' equity research reports. We investigate the investment narratives produced by AShSs to criticize explicitly financial analysts and challenge their narrative authority.[1] We also examine if and how financial analysts engage in activities to

[1] An *investment narrative* constitutes a story, based on several economic and strategic arguments, about whether investors should or should not make capital allocation decisions such as buying or selling securities, or refraining from dealing with certain types of investment products. An actor's *narrative authority* is reinforced when the investment narrative she promotes is seen by investors as resulting from expert knowledge.

respond to this challenge, which may destabilize their established position as producers of expert knowledge. The stakes involved are significant, relating to one's narrative authority in interpreting firms' performance and future prospects.

It is commonly understood that financial analysts are influential actors in capital markets (Fogarty & Rogers, 2005). They process relevant information and produce and disseminate narratives and forecasts to other market participants, who react to recommendation changes and analysts' forecasts (Hirst, Koonce & Simko, 1995; Ramnath, 2002). Investors expect from financial analysts that they make sense of past and current economic events surrounding a given company to predict its future, in a reasonable manner. Their role is to "absorb" uncertainty through the investment narrative they produce (Fogarty & Rogers, 2005, p. 341). Brauer and Wiersema (2018) maintain that financial analysts fulfill an important information brokerage and monitoring function for investors. Some recent research points to the role of narratives in promoting financial analysts' claim to expertise. For instance, according to Leins (2018, 2020) financial analysts tend to act as a powerful guild of economic experts with narrative authority, defined as the ability to create narratives that are accepted by other market participants as expert knowledge. Spence et al. (2019) explore how sell-side financial analysts seek to position themselves advantageously within the wider field of investment advice. Financial analysts' narratives are notably produced in equity research reports, which aim to influence investors who commonly face important uncertainties about future market developments (Huang, Zang & Rong, 2014; Franco, Hope, Vyas & Zhou, 2015). Imam and Spence (2016) shed light on the nature of the work that financial analysts actually do. Millo, Spence and Valentine (2020) point to financial analysts' capacity to persist and resist waves of criticisms against their work.

Importantly, claims to expertise do not exert a deterministic influence on targeted audiences (Power, 1996). A range of tests of claims occur daily, whose outcomes may solidify or decrease the legitimacy of a given expertise (Gendron & Barrett, 2004). We may therefore expect the legitimacy of financial analysts' expertise and their narrative authority being subject to tests of claims, where interested parties such as activist short sellers seek to question and disrupt the aura of credibility surrounding financial analysis reports. Thereafter, financial analysts may want to engage in frontstage or backstage defensive work. The concept of frontstage and backstage interactions (Goffman, 1959) has been used in accounting research (e.g., Abraham & Bamber, 2017; Goretzki & Messner, 2019; Dunne, Brennan & Kirwan, 2021).

Especially since the 2008-09 financial crisis, a distinct group of market participants has produced a radically different type of investment narrative about listed firms (Ljungqvist &

Qian, 2016; Wong & Zhao, 2017; Black, 2018; Zhao, 2020; Brendel & Ryans, Forthcoming). AShSs' narratives have led to the discovery of certain financial frauds (e.g., Let's Gowex, Sino-Forest, Valeant, Noble Group, Wirecard). In their reports, AShSs deploy rhetorical strategies conveying a negative investment narrative that aims to convince investors that a given target firm is overvalued (Paugam, Stolowy & Gendron, Forthcoming).[2] AShSs, who engage in public short campaigns and benefit from a declining stock price,[3] develop and disseminate "research reports" targeting listed firms, in which they claim expert knowledge.

Past research indicates, though indirectly, that AShSs' tend to be perceived as legitimate actors by investors.[4] Indeed, negative views about target firms expressed by AShSs lead to material effects: spikes in SEC filing views about the target firms, immediate price drop, long-term negative stock returns over the next six to twelve months, and sell off by current shareholders (Ljungqvist & Qian, 2016). Several studies document similar effects on investors, with large drop in the stock price surrounding the disclosure of short sellers' reports (e.g., Chen, 2016; Brendel & Ryans, Forthcoming; Paugam, Stolowy & Gendron, Forthcoming). These studies show that stock returns are persistently negative a long time after the disclosure of AShSs' reports. The stock price is on average –39% one year after fraud allegations and –27% one year after other allegations (Brendel & Ryans, Forthcoming). In Paugam, Stolowy and Gendron (Forthcoming), the stock price is down 23% six months after the AShSs' reports.

Further, Brendel and Ryans (Forthcoming) show that target firms frequently respond to activist short sellers' allegations through public denials, press releases, conference calls, internal investigations, or lawsuit threats. They find that 32% of attacked firms respond to activist short sellers. Therefore, some attacked firms consider that AShSs are viewed as legitimate enough by investors that they need to address AShSs publicly. Overall, these studies indicate that investors perceive, on average, that AShSs are legitimate actors revealing information that is at least partly accurate.

Nevertheless, AShSs' activities are also frequently criticized. AShSs are accused of spreading false rumors to negatively impact the stock price to increase their profits (see, e.g., Fox, Glosten & Rauterberg, 2018; Weiner, Totino & Goodman, 2019; Langton, 2020; Mitts,

[2] For a literature review on short selling, see Jiang, Habib and Hasan (Forthcoming).
[3] Although there are different ways to benefit from a declining stock price, the most straightforward form of short selling implies borrowing stocks in order to sell them immediately, in the hope of buying them back at a later date after a price decline, returning the stocks back to the lender, and thus pocketing a profit (net of a lending fee).
[4] Some AShSs, such as Muddy Waters Research or Citron Research, often appear in the business media (e.g., Bloomberg TV, CNBC) to disseminate their opinions, which contribute to the perception of expertise in the investment community.

2020). AShSs' activities are the subject of reflections from securities regulators, who are concerned about protecting investors (e.g., in France, see Autorité des Marchés Financiers, 2019; in Canada, see Ontario Securities Commission, 2020).

The investment narrative produced by short sellers is of interest because it challenges, explicitly or implicitly, financial analysts' narrative authority. Empirical evidence suggests that financial analysts are often optimistically biased (Bradshaw, Brown & Huang, 2013; Bradshaw, Huang & Tan, 2019; Dechow & You, 2020) and their stock recommendations frequently underperform the market (e.g., Wiegold, 2000).[5] Because short sellers argue that the stock price of a target firm is overvalued (i.e., that it overestimates considerably the "true" value of the firm), short sellers necessarily challenge financial analysts' work, whether they include or not in their report an explicit critique against financial analysts. Besides, a number of AShSs, in their reports, explicitly criticize financial analysts, sometimes quite aggressively (in 33% of campaigns in our sample) (see, e.g., Citron Research, 2016, p. 12).

However, it is not clear whether and how financial analysts respond to AShSs' accusations in subsequent frontstage or backstage activities. Should financial analysts respond to accusations? To what extent is responding central to (re)establishing analysts' narrative authority? How should they respond? Could it be that a number of analysts engage in backstage activities while avoiding to engage with AShSs' in their frontstage activities? In summary, our main research question is: how does the contest for narrative authority between influential actors (i.e., AShSs and financial analysts) unfold in the area of legitimate expertise for investment narratives?

Specifically, we analyze 442 short sellers' public reports and examine whether we identify explicit attacks against financial analysts. We find that 146 short seller reports (one third) directly attack financial analysts. Using framing theory (see Goffman, 1974, 1986; Brivot, Himick & Martinez, 2017, p. 705), we identify the framing tasks of AShSs that challenge financial analysts' narrative authority. AShSs' attacks focus on two dimensions of financial analysts' narrative authority: market expertise and critical thinking. Next, to make sense of financial analysts' activities following these attacks, we investigate 138 financial analysts' reports published within three months following the dissemination of short sellers' reports containing at least one explicit attack against financial analysts. We search these reports for the

[5] We do not claim that there exists a "true" investment narrative about listed firms because the future is highly uncertain and unpredictable. We are rather interested in the contest for the perception of being recognized as a legitimate producer of investment narratives.

presence of narratives about short sellers' allegations. We also conduct 12 interviews with AShSs and financial analysts.

We find that 66% of the financial analysts do not mention short sellers in the equity research reports that follow public criticisms of their work. This indicates that analysts generally avoid frontstage activities following explicit attacks against them. Indeed, equity research reports prepared by financial analysts are important because they are highly visible artefacts disseminating a salient narrative about firms. Our interviews with analysts and AShSs allow to make sense of this frequent lack of frontstage activities.[6]

We find that 34% of financial analysts chose to respond to AShSs' accusations in frontstage activities using equity research reports. We identify the counter-frames that the analysts use to react to AShSs' attacks. Interestingly, we find that analysts engage in similar framing tasks as AShSs. In their counter-frames they also argue that AShSs lack market expertise and that they exhibit a severe lack of objectivity in their activities.

Finally, we examine whether empirical archival data corroborate the existence of this dual level of analysts' activities following AShSs: a lack of frontstage activities while backstage activities are taking place. To do so, we use financial analysts' revisions of stock recommendations and of target prices. Stock recommendations are highly visible and result from frontstage activities. However, target prices are less visible and less scrutinized by managers and can be the outcome of backstage activities. Analysts' target prices are the quantitative expression of their opinion about the fundamental value of a stock. If financial analysts truly believe that AShSs are incorrect, then financial analysts should, on average, maintain their evaluation about the highly visible investment recommendation *and* the less visible target prices.

If no backstage activities exist, financial analysts' target prices should be unrelated to AShSs' campaigns because the most frequent attitude from financial analysts is the lack of frontstage activities. We find that financial analysts do not change their stock recommendations (65% buy recommendations) while we find a significant association with negative revision of their target prices after the dissemination of activist short sellers' reports. This supports the idea that financial analysts engage in backstage activities, on average, when addressing activist short sellers' contest for narrative authority despite no change in their frontstage activities.[7]

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[6] Our interviews indicate quite clearly that the lack of frontstage response is not due to the lack of financial analysts' awareness of AShSs' reports. We provide quotes to support this in Section 5.1.

[7] Social learning can explain why financial analysts revise their target prices following short sellers' attacks (Do & Zhang, 2020).

We make the following contributions to the literature. First, with the exception of Zhao (2017), we know very little about the interaction between AShSs and financial analysts – both being influential actors who are producers of meaning and predictions about future market developments. Our paper is the first to the best of our knowledge to focus on the contest for narrative authority.[8] Considering the growing importance of AShSs, we need to understand better what they do and how their activities affect others.

Second, we contribute to a better theoretical and empirical understanding of the concept of narrative authority developed by Leins (2018, 2020). At the theoretical level, we identify critical dimensions supporting actors' narrative authority, in particular a dimension related to skills (i.e., calculative expertise) and a dimension related to morality (i.e., independence or ethical behavior). At the empirical level, we show that narrative authority of one party may be gained at the expense of the narrative authority of another party. We also show how financial analysts engage in activities (often in the backstage) to counter-attack and defend their narrative authority. As maintained in a general way by Goffman (1959), claiming for expertise in contemporary capital markets may imply a form of theater where frontstage images may be quite remote from behavior actually taking place in the backstage.

Third, we contribute to the debate about the regulation of AShSs, who are currently largely unregulated. Concerned with investor protection, regulators consider whether they should increase the regulation of the activities of AShSs (e.g., in France, see Autorité des Marchés Financiers, 2019; in Canada, see Ontario Securities Commission, 2020). Conversely, financial analysts' activities are highly regulated. This rare setting, involving these two groups of market participants, constitutes to a form of natural experiment about the interactions between two opposite paradigms, which is relevant to market regulators.

The remainder of the paper is organized as follows. In Section 2, we develop the core concepts that underlie our theoretical underpinnings. Section 3 describes our research approach and methods. In Section 4, we investigate how AShSs attack financial analysts. In Section 5, we assess the extent to which financial analysts respond to AShSs. In Section 6, we discuss the frontstage and backstage activities of financial analysts and we discuss and conclude our study in Section 7.

[8] While Paugam, Stolowy and Gendron (Forthcoming) focused on the rhetorical discursive strategies of six AShS, we analyze the contest for narrative authority on the basis of 442 reports written by 72 AShSs.

2. Theoretical underpinnings: narrative authority, framing and counter-framing

2.1. The role of investment narratives in establishing financial analysts' expertise: the concept of narrative authority

Historically, financial analysts have come to play a central role in capital markets, being often perceived as skilled interpreters of a company's financial performance and prospects – mediating between a company's future, present and past through their sense-making abilities and techniques. Leins (2018, p. 117) explains that "analysts clearly become important actors in the governing process of the market, in that they have the opportunity to shape markets as well as describe them". Their role is understood as being very important as many capital market stakeholders assume that a significant aura of complexity and uncertainty surrounds firms' financial performance and future value. Accordingly, predicting future firm value has been viewed, at least in the last decades, at the center of investors' investment decisions – and at the core of financial analysts' expertise (MacKenzie, 2006). That being said, whereas financial analysts disseminate their advice via text and written reports, it is only lately that research has come to manifest some significant interest toward the role of narratives in influencing investor behavior (e.g., Holmes, 2009).[9]

In other words, the assumption is that market participants (such as financial analysts) rely strategically on text and narratives to promote their claims. These claims often relate to the construction of expertise. In the context of our study, financial analysts' role is predicated on the persuasiveness and legitimacy of their claims to expertise, which are conveyed at least in part in certain highly visible (frontstage) activities such as the research reports they write and the recommendations they make. Importantly, the fate of analysts' claims is into others' hands (Latour, 1987), depending on how their reports and recommendations are acted upon by the audiences in the financial community. In other words, tests of claims take place in public arenas in order to determine the solidity of a given argument promoted by some proponents (Bourguignon & Chiapello, 2005). A report that is favorably received establishes further the legitimacy and "narrative authority" of financial analysts in capital markets. Narrative authority is defined by Leins (2020, p. 13) as "the ability to come up with narratives that are accepted by other market participants as expert knowledge". More precisely, Leins elaborates on narrative authority in the following manner:

[9] Narratives have already been studied in research on organizations (see, e.g., Czarniawska, 1998).

> The concept of narrative authority means that economic experts — and financial analysts in particular —try to gain influence in the market by establishing particular narratives and defend them against other narratives that circulate among market practitioners. To successfully create, circulate, and defend a narrative enables them to get a reputation and maintain their expert status [our emphasis]. (Leins, our interview)

Today, financial analysts' narrative authority is often taken for granted,[10] not least in a stream of financial accounting research where their recommendations often constitute empirical material that is mobilized by researchers in their explanatory models to capture observable market consensus or expert opinion (e.g., Abarbanell & Lehavy, 2003; Asquith, Mikhail & Au, 2005; Malmendier & Shanthikumar, 2014; Beaver, McNichols & Wang, 2020). Sell-side financial analysts are viewed as sophisticated information intermediaries who play an important role in capital markets (Brauer & Wiersema, 2018) as they process and disseminate financial information to other market participants (Hirst, Koonce & Simko, 1995; Ramnath, 2002). Yet, the value and meaningfulness of financial analysts' work is challenged by a number of academic studies that point to the efficient market hypothesis, which posits that prices already reflect all relevant information (Fama, 1970). Such studies implicitly argue that financial analysts' work is futile because it is impossible to predict future asset prices which follow a "random walk" (Malkiel, 2020). Evidence suggests that stock pickers cannot systematically outperform the market (Brealey, Myers & Allen, 2016).

2.2. Framing and counter-framing in establishing and defending narrative authority

Narrative authority in capital markets is not a pre-existing feature and must be developed by market participants. We draw on framing theory, first formulated by Burke (1937) and Bateson (1955/1972), popularized by Goffman (1974, 1986) and further developed by Benford and Snow (2000)[11] to analyze the "discursive strategies" (see Bucher, Chreim, Langley & Reay, 2016, p. 498) or "framing repertoires" (Giorgi & Weber, 2015, p. 333) of the two groups of actors, objects of our study. As defined by Entman (1993, p. 52), "to frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described".

If framing theory has developed around social movements (e.g., Snow, Rochford Jr, Worden & Benford, 1986), there is a growing literature that mobilizes the tools from framing

[10] For instance, the financial media frequently mention financial analysts' work (e.g., recommendation changes) to explain stock price changes. See, e.g., https://www.barrons.com/articles/ge-stock-upgrade-bearish-bullish-valuation-51581080212 (Last accessed: January 11, 2021).
[11] For reviews on the framing theory, see Cornelissen and Werner (2014) and Borah (2011).

outside the scope of social movements (see, e.g., Bay, 2011, p. 596; Giorgi & Weber, 2015; Himick & Audousset-Coulier, 2016; Brivot, Himick & Martinez, 2017; Cooper, Ezzamel & Qu, 2017; Himick & Brivot, 2018; Beelitz & Merkl-Davies, 2019). As pointed out by Entman (1993, p. 51), "whatever its specific use, the concept of framing consistently offers a way to describe the power of a communicating text".

Framing theory includes the definition of an audience. Actors frame issues so that they become relevant to the audience they seek to influence (Himick & Brivot, 2018, p. 32). In our setting, the main audience of AShSs are investors. Frames are like a "collective interpretive map", that simultaneously hide and highlight certain aspects of reality to display a version of reality that the producer of the frame wants that its target audience sees (Brivot, Himick & Martinez, 2017, p. 708). Giorgi and Weber (2015, p. 335) stresses that framing often reduces a complex situation on a few dimensions that structure communication with an audience, thus reducing sensemaking efforts for the audience's evaluation of a situation. A particularly useful notion in our setting is "diagnostic framing", which refers to the identification of specific problems by the producer of the frame and the attribution the problems' causes and blames for such problems on certain parties (Yang & Modell, 2015, p. 3). In their research reports, AShSs engage typically in a process of diagnostic framing to present financial analysts as the cause of certain problems with investors' perception of attacked firms.

Frames can be seen as "schemata of interpretation" (Snow, Rochford Jr, Worden & Benford, 1986) that actors use to influence the interpretation of events among different audiences (Fiss & Zajac, 2006, p. 1174). Related to this, Fiss and Zajac (2006) and Beelitz and Merkl-Davies (2019, p. 1591) argue that framing is a sense-giving process, which involves the strategic construction of certain schemata, in order to guide audiences' understanding and interpretation of a situation, with the objective to influence their sense-making processes. Himick and Brivot (2018, p. 32) recall that certain direct or indirect audience may not passively accept the frame produced by certain actors. They can produce a counter frame, concept introduced by Benford (1987, p. 75) and developed by Benford and Snow (2000, p. 626), as a way to interpret differently a situation in order to achieve a different objective.[12]

2.3. Financial analysts' frontstage and backstage activities

How analysts behave vis-à-vis challenges to their narrative authority (or their reputation) may be understood through the prism of frontstage and backstage interactions with different

[12] Brivot, Himick and Martinez (2017, p. 709) refer to "contesting frames".

actors of capital markets (Goffman, 1959). Goffman highlights that within society, each actor is deeply involved in daily performances, which take place in the frontstage. The actor's challenge is to protect her image in the frontstage – while making sure that the audience is not able to access the backstage, as the backstage is characterized with some significant differences as compared to the front. In certain circumstances, the actor will decide to respond to challenges to her legitimacy – while at other times, she will decide to ignore them. Goffman (1959, p. 75) highlights: "A status, a position, a social place is not a material thing, to be possessed and then displayed; it is a pattern of appropriate conduct, coherent, embellished, and well articulated."

Why is it, then, that some actors will engage in taking proactive means to address legitimacy challenges sometimes in frontstage activities? Others will just seem to apparently ignore such challenges? We believe that our unique data, which pertains to narrative authority challenges opposing AShSs to financial analysts, provides us with the opportunity to understand better the set of circumstances that motivates a breed of "experts" with high social status (financial analysts), to sometimes break silence and engage in frontstage activities to address AShSs' accusations, while in other cases avoiding the frontstage to engage in backstage activities.

3. Research approach and methods

3.1. Scope of data collected: short sellers' reports

We obtained our sample of short-selling campaigns from the "Short" section of the database Activist Insight (previously Activist Short Research) accessed in December 2019. We identified all short sellers' campaigns over the period 2015 to 2018 (we exclude 2019 campaigns to focus on four complete years of data). For the sake of homogeneity, we restricted our sample to target firms listed in the U.S. We obtained a total of 619 short sellers' campaigns (targeting for 452 unique firms).[13] Table 1 reports descriptive statistics concerning the data collected and analyzed.

For all these campaigns, we searched for the short sellers' reports. We were able to retrieve 442 reports (which represent 71.4% of the full sample). Our main source for obtaining short sellers' reports was Activist Insight. When the short sellers' reports were not available on Activist Insight, we searched the blog Seeking Alpha (https://seekingalpha.com), which

[13] A firm may be the target of several short sellers and/or may be targeted by a short seller several times over the sample period.

contains many short sellers' campaigns (Zhao, 2020), or directly searched short sellers' websites (when available).[14]

[Insert Table 1 about here]

3.5. Interviews

We complemented our data originating from activist short sellers' research reports and financial analysts' reports with 12 semi-structured interviews. We contacted six AShSs and six financial analysts by e-mail, sending them a brief outline of the research project. All of them accepted an invitation to have a conversation with us. All AShSs accepted to have their identity revealed while all financial analysts preferred to remain anonymous.[15] We conducted each interview by telephone or through the internet (Zoom). All 12 interviews were made by one or two coauthors. We conducted one interview in March 2020 and all the other interviews in March and April 2021.[16]

We developed two interview guides, one for the AShSs and one for the financial analysts (available in Online Appendix A). These guides were rather used as an aide-memoire; our methodological objective was to ensure the interviews consisted in a meaningful conversation between interviewer and interviewee (Empson, 2018). At the end of the interview, we checked that the most important themes had been discussed.

We present in Table 2 the interview characteristics (interviewees, date, duration, language, interviewers). All interviews were subsequently transcribed. As some interviews were made in French, we translated the excerpts we use in the paper in English. Our interviews were particularly relevant in obtaining a more nuanced understanding of the perspectives of involved actors. These interviews provided valuable context-based information on the general dynamics that underlie the views of sell-side analysts by AShSs and the views of AShSs by financial analysts. The interviews also allowed us to engage with the participants on the elaboration of

[14] There are a lower number of activist short sellers' reports (442) than of campaigns (619) because some reports are not available anymore or because some campaigns are based on public interviews on TV (e.g., Jim Chanos on CNBC) or tweets and not on the production of a full report. The total number of campaigns (619) over our studied timeframe could appear to be relatively small. However, it is important to understand that AShSs cover far less companies than financial analysts. As explained by Fraser Perring, activist short seller, formerly at Zatarra research, currently at Viceroy Research, "Analysts have to cover 20 companies. We cover four a year".

[15] We would like to thank the Editor and the reviewers for the suggestions to conduct interviews with AShSs and financial analysts. These interviews were instrumental in our understanding of the background of our research and analysts' backstage activities.

[16] Following common ethical guidance about interviews, we asked interviewees for authorization to record the interview, shared the full interview transcripts for approval by the interviewees, committed to protect carefully the data, and obtained approval from each interviewee regarding specific excerpts to be included in the article.

their narratives and activities – including the uncovering of certain backstage activities by financial analysts.

[Insert Table 2 about here]

To get more insight on the concept of narrative authority, we also interviewed Stefan Leins, author of Leins (2018, 2020) in March 2021. With his approval, we provide in this paper some quotes from this interview.

3.2. Analysis of activist short sellers' reports

We first analyzed the short sellers' reports looking for attacks against financial analysts. We define an attack as an explicit, often harsh, criticism of a specific financial analyst or of financial analysts as a group. We read the 442 available reports (which represent 8,542 pages in total) and searched for terms such as "analyst", "Wall Street", "analysts", "sell-side", "sell side", and "broker". We carefully examined each occurrence identified with this search approach to determine whether the surrounding text could be classified as an attack against financial analysts. For example, Spruce Point wrote in a report dated November 8, 2017 on AeroVironment: "In typical fashion, Wall St. analysts over-extrapolate recent performance, and see accelerating double digit revenue growth and 20%+ EPS growth."

In our sample of 442 reports, we found at least one attack in 146 reports (33% of available reports). For these 146 reports, we counted the number of attacks per AShS report. In most cases, attacks are contained in one sentence. In a few cases, we found more than one attack in the same sentence. In our sub-sample of 146 reports, the maximum number of attacks in a single report amounts to 34, with an average of 4.5 attacks per short seller report. In the empirical section, using framing theory (Goffman, 1974, 1986; Yang & Modell, 2015; Himick & Brivot, 2018), we provide several typical excerpts of accusations from our comprehensive list of short sellers' attacks.

Interestingly, Table 1 shows that the frequency of attacks against financial analysts in short sellers' reports has been increasing steadily over time. In 2015, 26.6% of reports included at least one attack against analysts and in 2018, 45.3% of reports comprised at least one attack against financial analysts. This growing trend points to the relevance of our research endeavor as we find that analysts' narrative authority becomes more and more frequently challenged over time. This trend also suggests that activist short sellers increasingly rely on attacks against financial analysts to establish their own superior narrative authority.

3.3. Scope of data collected: Financial analysts' reports

We focus on the possible frontstage responses from analysts to AShSs' attacks which challenged their narrative authority. To do so, we analyze the financial analysts' equity research reports about target firms published shortly after AShSs' attacks. We focus on explicit attacks to increase the chance to identify frontstage responses from financial analysts.

To communicate with investors, financial analysts' "primary work product" is the "company report" (i.e., the "research" report produced by financial analysts) (Fogarty & Rogers, 2005, p. 332; Giorgi & Weber, 2015) which is instrumental in establishing financial analysts' narrative authority. This product has a high level of visibility because, as one interviewed analyst explained, equity research report is a "paper that is stamped with the name of the analyst and the broker." (Financial Analyst 5). Hence, this artefact is the sort of *official* financial analyst opinion about AShSs' accusations.

Indeed, according to Leins (2020, p. 12), "above all, […] [an analyst report] illustrates how financial analysts construct and communicate investment narratives that look coherent and are built to persuade investors." Analysts are expected to write a company report every time material information influences the firm they cover (such reports are sometimes called financial "updates"). The content of the analysts' research report is highly formalized with many figures, tables and charts, a target price, sometimes a specific investment horizon, historical and forecast accounting data, and the name(s) and title of the author(s) of the report. In their reports, financial analysts tend to use highly technical language referring to precise corporate finance concepts (e.g., free cash flow, net debt) and various calculative devices supporting the investment recommendation (e.g., discounted cash flows, multiples). The reports are filled with abbreviations and many acronyms – for instance regarding certain performance measures or concepts (e.g., EPS, ROA, EBITDA, EV, FY, E).[17] Overall, the document usually appears to be sophisticated, thereby conveying an image of expertise.[18]

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[17] EPS is earnings per share, ROA is return on assets, EBITDA is earnings before interest, taxes, depreciation, and amortization, EV stands for enterprise value, FY means fiscal year, and E generally indicates "estimated" or "estimation".

[18] A recent stream of literature discusses the usefulness of analysts' reports. For example, Brown, Call, Clement and Sharp (2016, p. 146) explain that buy-side analysts indicate that information provided by sell-side analysts is not among the most useful inputs to their stock recommendations. Spence et al. (2019) investigate the difficulty sell-side analysts have to be heard. However, this literature does not make analysts' reports irrelevant. Indeed, according to Giorgi and Weber (2015, p. 338), "although analysts also make phone calls and organize small conferences, they mainly use reports to communicate with investors given that it is not unusual for an analyst to serve more than 800 institutional clients on an ongoing basis (…)". Consistent with our findings, it shows that financial analysts establish their narrative authority in capital markets via several means, including research reports and recommendations (i.e., frontstage activities) but also private communications and concierge service provision (i.e., backstage activities). We thank one reviewer for pointing to this issue.

We started our search process through the identification of the firms that were criticized in our sample of 146 short seller reports. In Thomson One (http://www.thomsonone.com), we searched for analysts' reports related to these target firms, published within three months of the date of the attack as indicated in the short seller's report. We reasoned that three months gave ample time for financial analysts to respond to AShSs' accusations and comment on new potentially relevant information influencing the target firms' stock price within a few days (Ljungqvist & Qian, 2016). We were able to relate 143 short seller reports (out of 146)[19] to 131 unique listed firms because some reports target the same firm (two reports can target the same firm at two different times). To identify possible replies from analysts to these attacks, we searched for the following terms: "[Name of the short seller]" (e.g., "Muddy Waters" or "MW") or "short report" or "short seller" or "short thesis".

For 95 (over 143) short seller reports (66% of the subsample of financial analysts facing explicit attacks), there were no mention of the short seller's report or attack in the analyst's equity research report. For 48 AShS reports (34%), we found an explicit mention of the attack in the analyst's report. There can be several reports published by different analysts after a given short seller attack. Overall, we identified 138 analyst reports responding to AShSs' attacks for the 48 targeted firms. We counted a mean of 2.9 analysts' reports mentioning AShSs per target firm, with a minimum of one analyst report mentioning a given short seller and a maximum of 20 analyst reports referring to the AShS.

3.4. Analysis of analysts' reports

The frequency of no frontstage response is an interesting result *per se*, which is discussed in Section 5 in light of our interview data that allowed us to identify the reasons for this characteristics as well as a number of analysts' backstage activities. Framing theory (Goffman, 1974, 1986; Yang & Modell, 2015; Himick & Brivot, 2018) facilitates the analysis of possible dimensions in the counter-frame produced by financial analysts in their frontstage responses. We carefully read the 138 analyst reports to identify specific narrative patterns in the arguments developed by the financial analysts. We present our empirical results regarding analysts' frontstage and backstage activities in Section 5.

3.5. Summary of the results

Figure 1 offers a visual representation of our entire research endeavor. It provides a description of the main theoretical concepts we mobilize, a summary of our main findings, and

[19] We did not retrieve three target firms in Thomson One.

includes key statistics about the reports collected (i.e., the number of AShSs' reports and attacks against analysts and the number of analysts' reports and frontstage responses).

[Insert Figure 1 about here]

Our empirical setting relates to a narrative contest opposing AShSs and financial analysts. Figure 1 shows that the event that triggers the contest consists of the diffusion of an AShS's report disseminating an investment narrative. Past studies indicate that the narrative produced by AShSs is influential and becomes, on average, the dominant interpretation of the target firm's financial performance among investors (Ljungqvist & Qian, 2016; Wong & Zhao, 2017; Black, 2018; Zhao, 2020; Brendel & Ryans, Forthcoming; Paugam, Stolowy & Gendron, Forthcoming). As a result, AShSs' reports have a large negative impact on target firms' stock price. In about one third of the time, AShSs' produce a frame that explicitly challenges two core attributes of financial analysts' claim to narrative authority: (1) their market expertise and (2) their ability to produce critical thinking. Such diagnostic framing associates financial analysts as being partly responsible (i.e., causing) the overvaluation of target firms. Therefore, AShSs' frame may destabilize the narrative authority of sell-side financial analysts.

When explicitly attacked, in about two thirds of the cases, analysts do not engage in frontstage activities for a number of reasons (explained in Section 5.1), while engaging in possible backstage activities (explained in paragraph 5.1.5). For one third of the cases, analysts explicitly engage in frontstage activities and produce a counter-frame in subsequent equity research reports. In these equity reports, they attempt to influence their audience by, themselves, criticizing AShSs' core attributes of narrative authority: (1) that AShSs' have greater market expertise, (2) or that AShSs are more objective.

4. Activist short sellers' framing of financial analysts: Challenging narrative authority

In an ethnography of financial analysts, Leins (2018) provides a meaningful description of (buy-side) financial analysts' work and role in capital markets.[20] He argues that financial

[20] We believe that narrative authority, although developed from an ethnographic study of buy-side analysts (Leins, 2018), also applies to sell-side analysts. While buy-side (who write reports for users within their employing organization) and sell-side analysts (who write reports for outside clients) differ in some important respects, they nonetheless share a number of characteristics in their activities, organization, and role. There are several reasons why we think that using the concept of narrative authority is also relevant for sell-side analysts. First, the boundaries between sell-side and buy-side roles are not strict. Many of the financial analysts we interviewed had worked in both roles. Second, as pointed out by Stefan Leins during our interview, financial analysts carry their reputation and legitimacy when they move from one role to the next. This certainly applies to their narrative authority. In our interview, Leins explained that "I would argue that the concept is not limited to buy-side analysts. When you look at individual careers for financial analysts, many move from buy-side to sell-side. The concept applies in the same way" (our interview).

analysts establish and maintain their influential position in the field of financial advisory work in three main ways:

> First, they are successful in presenting themselves as a group of market experts and, as such, as a distinct subprofessional category in banking. They distinguish themselves from other bankers by using cultural codes such as a particular language and style of dress and by referring to a particular body of acquired knowledge (see Boyer, 2005; Boyer, 2008). They thus acquire symbolic capital (Bourdieu, 1984) that helps them to become recognized as a distinct and legitimate group of experts in finance. Second, by establishing market forecasts, analysts produce narratives that create a sense of agency in the highly unstable and uncertain field of financial markets. […]. Third, financial analysts are market intermediaries whose existence and activities are helpful to wealth managers and the host bank. […] these factors help financial analysts transform the skepticism of economic theory and experienced failure into a powerful market position. (p. 5)

Leins (2018) elaborates on the core attributes of narrative authority. These attributes are instrumental in establishing and maintaining narrative authority of financial analysts.

> "Three elements are particularly important in the construction of an investment narrative. First, analysts need to deal with calculative approaches and reported numbers in a way that recipients of their forecast will accept them as experts in the market. Second, analysts need to support their storyline with narrative and visualization techniques. Here, translating data into charts, figures, and tables is of importance. Third, in addition to referring to numbers and data, analysts also need to show that their investment narrative is based on more than just calculation. At this point, they often refer to personal elements, unexpected data, and background information. This allows them to reinforce their agency as individual market experts." (pp. 117-118)[21]

The first attribute of narrative authority includes the capacity to identify relevant information. "Financial analysts collect information and conduct analyses to understand current developments in financial markets" Leins (2018, p. 2). Financial analysts generally fear "of missing out relevant information" Leins (2018, p. 69). They also need to appear as being "calculative experts". Leins (2018, p. 11) refers to a "broad repertoire of techniques" and explains that "financial analysts are highly educated bankers who see themselves as experts on financial markets" (p. 47). The second attribute relates to how financial analyst assemble their view in a pleasant and visually convincing manner. The third attribute of narrative authority lies on the capacity to "*critically* valuate the companies' stock market performance" [our emphasis] (Leins, 2018, p. 144). It is crucial for analysts to be free to choose which estimations they use for their analysis. They must produce their own original interpretations and scenarios. "Stressing the importance of *the freedom to choose* which estimations to use, and of the need to come up with *original interpretations*, reveals a critical point about the work of financial analysts. [our emphasis]" (Leins, 2018, p. 73). Finally, "financial analysts are presented as

[21] All underlined words in the quotations represent our emphasis.

independent market experts [our emphasis]". (Leins, 2018, p. 137). Overall, being a critical thinker is essential for the perception on financial analysts' narrative authority.

Our analysis indicates that AShSs' aim to destabilize the position of financial analysts through the production of a negative investment narrative about target firms; also, a number of short seller reports explicitly criticize financial analysts. While the vast majority of AShSs focus on financial analysts as a group of market participants, a minority of others prefer to target specific individuals.

Framing is the way AShSs articulate discursively their negative attitude towards financial analysts to gain influence on investors. As we anticipated, we find empirical evidence that AShSs challenge the narrative authority of financial analysts by using a frame challenging two core attributes of financial analysts' narrative authority: (1) their market expertise; and (2) their critical thinking. These two fundamental attributes are influential in the perception of financial analysts' investment narratives by investors.

4.1. Framing financial analysts as lacking market expertise

In our reading of 146 short-sellers' reports which contained attacks against financial analysts, we found that many cast doubt on analysts' claims to market expertise. Using several excerpts from AShSs' reports, we provide insight into how they seek to reduce the investors' perception that financial analysts are market experts. The subsection is organized along two elements highlighted by Leins (2018): (1) analysts ability to identify relevant information and (2) analysts' calculative expertise.

4.1.1. Failure to identify relevant information

Financial analysts are attacked on their failure to identify relevant information because AShSs argue that analysts do not understand firms' fundamentals or miss material information.

Allegations that analysts do not understand the firms' fundamentals

AShSs' reports often attack the "core" of analysts' expertise – their ability to understand and potentially detect problems with a company's "fundamentals". The notion of fundamentals relates to the core economic activity of a firm (e.g., selling cars for a car manufacturer) – while relegating to the periphery less critical operations (e.g., a firm's secondary activity). For an analyst, being able to analyze correctly firms' fundamentals constitutes an unescapable passage point in estimating the value of a firm. Seminal books in the area of financial analysis discuss the notion of fundamental (or intrinsic) value (e.g., Graham & Dodd, 1934; Graham, 1949) and refer to the concept of fundamental analysis, which occupies a prominent position in financial

analysts' corpus of professional knowledge. For instance, one AShS made the following statement about financial analysts:

> YETI is unanimously recommended by Sell Side analysts who tout YETI as a powerful brand with significant growth potential. But these rosy projections, in our opinion, ignore the fundamental reality of YETI's business. (November 26, 2018, Red Owl Research vs. YETI Holdings)

In this excerpt, the AShS points to a problem relating to the strength of the target firm's brand, which is critical to the core activity of (in this case) a retail firm. From this perspective, a failure to appreciate the ability of the brand to attract customers engenders errors in estimating future sales growth and in determining the firm's fundamental value. The next excerpt relates to another AShS accusation that analysts, as a group, somehow overlook the firm's fundamental business activity:

> When Angie's List (…) and Zulily (…) were skyrocketing on improving metrics, fundamental flaws in their business models often get cast aside as sell-side research analysts cheerlead quarterly improving metrics as proving a successful business model. (September 9, 2015, Xuhua Zhou vs. Wayfair)

In this case, the AShS confidently points to analysts' inability to detect fundamental flaws in the target firm's business model. The accusation is that analysts somehow are mesmerized by impressive financial metrics instead of paying attention to core business activity. This is a serious allegation since it addresses a critical part of financial analysts' work. The following example further illustrates the disciplining role of a firm's fundamentals – which allegedly act as a reality check, specifically as an invisible force that pulls optimistic analysts back to reality:

> Fundamentals: SGRY Rated Worst; New Ho-Hum Analyst Rating SGRY has received some positive coverage from analysts who estimate 2016 earnings of just over $2. For example, the stock just got an "overweight" rating and sort of a half-hearted $21 price target for the year as KeyBanc Capital Markets initiated coverage. But the fundamentals keep biting SGRY. (June 15, 2016, The Street Sweeper vs. Surgery Partners)

In the next excerpt, the AShS brings to the fore financial analysts' lack of understanding concerning the business of the firms they cover. The accusation is not constrained to analysts but it also targets shareholders.

> This has created a solid long-term shorting opportunity as we believe analysts and shareholders don't fully understand the business. (October 12, 2017, White Diamond Research vs. Everspin Technologies)

Sometimes, such as in the next excerpt, short sellers maintain that analysts do not understand fundamentals because they do not possess sufficient industry expertise, or because their experiential background is ill-suited to the target firm's industry. This type of attack may be particularly effective considering that investors often tend to value analysts' industry expertise (Bradley, Gokkaya & Liu, 2017). Being perceived as having relevant expertise in the target industry seems important in the construction of a meaningful investment narrative

(Bradley, Gokkaya, Liu & Xie, 2017). Financial analysts generally specialize in a given specific industry within which they compare and rank firms (Boni & Womack, 2006).

> The Analysts covering the stock have no background in Insurance and have pushed a valuation that's well in excess of the peer universe. (August 9, 2018, The Capitolist vs. Trupanion)

Financial analysts are also blamed for not paying enough attention to the business of the covered firms – or for overlooking relevant material facts about the firm they cover. The following excerpt illustrates this pattern:

> Note to analysts: If you think you can "analyze" an E-Commerce company and not even refer to Amazon, it is time you quit your job and take up another line of work. (August 31, 2015, Citron Research vs. Wayfair)

This excerpt boldly challenges financial analysts' claimed expertise. How could financial analysts covering an e-commerce firm not integrate in their analysis (note the use of quotation marks to cast doubt on the quality of the analysis work carried out by the financial analysts) the potential competition from Amazon, clearly a major actor in e-commerce? This factual statement may be quite destabilizing in the eyes of readers, thereby possibly weakening analysts' narrative authority.

The next excerpt illustrates how financial analysts allegedly fail to incorporate one important piece of information, which was publicly available, in their analysis.

> Almost a quarter of QuinStreet's total revenue is now attributable to the auto insurer Progressive – a fact that management and sell-side analysts have scarcely mentioned. (April 11, 2018, Kerrisdale Capital Management vs. Quinstreet)

The assumption is that one fourth of the firm's revenue is material enough to be noticeable. As a result, the failure to take this element into consideration casts serious doubt on the financial analyst's claim to expertise.

Allegations that financial analysts miss material information

Short sellers often argue that financial analysts have missed an important piece of information which is highly relevant to the "true" investment narrative. Recall that analysts must constantly look for relevant information to update their forecasts and provide timely narratives (Leins, 2018).

> More shares for management: It is important to note that the company has a mostly unnoticed 3.8 million shares that are virtually certain to be granted, but are currently not included in analyst reports (…), Google Finance (…) or Bloomberg (…). (October 9, 2015, The Emperor Has No Clothes vs. Nobilis Health)

In this excerpt, the AShS highlights the lack of thorough analysis about share count, which is important to compute a reliable estimate of the value of one share. This kind of computation is central to the investment narrative because analysts typically compute a target price per share.

In the following example, the AShS points to material information that seems to be ignored by financial analysts, such as the expiration of a key patent.

> Nowhere in its SEC filings, nor in the analysts' ridiculous models, is the truth reflected that this key patent, the protective moat which protects over 40% of j2's gross revenues, and likely well over 75% of its net income, expires as protection against any and all competition in just 13 months. (March 10, 2016, Citron Research vs. J2 Global)

Financial analysts are also attacked for not revising their estimates, despite an important negative event or the release of a significant new piece of information.

> La Jolla was forced to shelve its most promising drug candidate, resulting in a massive decline in market opportunity. Analysts haven't revised price targets to reflect any drop in opportunity. (July 13, 2015, The Street Sweeper vs. La Jolla Pharmaceutical)

The allegation that financial analysts did not update their forecasts in light of new information (i.e., that the pharmaceutical firm cannot continue developing a drug) threatens the aura of expertise surrounding analysts.

4.1.2. Weakness in calculative expertise

One critical ability claimed by financial analysts to establish and maintain their narrative authority is to provide sophisticated computations using financial models such as discounted cash flows. These computations are used to support their investment narratives. Investors expect from financial analysts that they are able to provide thorough and reliable financial statement analysis, based on credible and meaningful computations. Accordingly, financial analysts' training relies heavily on financial statement analysis (see, e.g., Wahlen, Baginski & Bradshaw, 2017). To criticize their competence in this respect, AShSs frequently claim that financial analysts make material mistakes when computing various measures used in the construction of their investment narrative (such as a price per share or adjusted EBITDA). In the following excerpt, the AShS claims that financial analysts made mistakes in computing certain financial metrics.

> XPO is more expensive than it appears given its highly "adjusted" non-GAAP results, and analysts' inability to correctly account for the 10.2m shares that are freely convertible from the Series A Convertible Preferred stock. (December 13, 2018, Spruce Point Capital Management vs. XPO Logistics)

In this example, the alleged error from financial analysts relates to failure to consider a potentially diluting event, which would reduce the value of the firm for existing shareholders. Taken at face value, this criticism looks important and may lead investors to question analysts' proficiencies in undertaking financial modeling.

In the following excerpt, the AShS claims that analysts underestimate a target firm's true expenses, which results in overestimating the firm's performance and value.

> In general, GHR views all of the prior exclusions as reoccurring and true expenses for JCOM. Managers remove these expenses because they can, and no analysts will hold them responsible. (…). Analysts must understand that the aforementioned costs are very real expenses that take cash away from the company or dilute its shares. (December 12, 2018, GlassHouse Research vs. J2 Global)

The excerpt has a noticeable educational tone. The analysts' expertise is deemed deficient as they apparently do not understand a basic concept; as a result, the AShS takes the opportunity to teach publicly financial analysts how to perform "correct" financial analysis. In front of investors, financial analysts are put into the role of students and the AShS acts as an instructor. This kind of staging may be effective in creating doubt regarding financial analysts' actual market expertise, a key attribute of narrative authority.

AShSs also point to basic deficiencies in making sense of accounting numbers – or in integrating accounting numbers appropriately into financial models. The next excerpt illustrates this type of allegation:

> We also wonder how much of the purported "growth" at Benefit Wallet described by sell-side firms such as SunTrust and JPM is "real" given the massive disconnect between the figures these firms have reported versus the figure reported in the CNDT 10-K referenced above. (June 22, 2018, The Friendly Bear vs. Conduent)

Investors generally expect that financial analysts are comfortable in making sense of financial reporting standards and in interpreting accounting data. The description of the financial analyst qualification by the Bureau of Labor Statistics - U.S. Department of Labor (2002, p. 51) explicitly refers to advanced knowledge in financial accounting. In the above excerpts, the AShSs point to significant deficiencies that relate to a domain of expertise which analysts are expected to rein in.

Inaccurate comparisons are also mentioned by AShSs. In the world of financial analysis, it is generally understood that analysts who generally cover a specific industry need to be aware of the main competitors within it – for instance to realize common-size "vertical" analysis and compare firms' relative performance (e.g., Stolowy, Ding & Paugam, 2020, p. 492). This awareness may be useful to construct a meaningful investment narrative about certain firms being cheaper relative to others, or to compare performance measures in a credible way. Therefore, the allegation that financial analysts make incorrect comparisons is not to be taken lightly. For instance,

> In setting lofty price targets, analysts' stretch comparisons of Planet's business to include "healthy living" comps (supermarkets e.g. Whole Foods), fast food operators (e.g. Chipotle), and clothing retailers (e.g. Michael Kors); absurd comparisons to industries with different business risks! (March 8, 2016, Spruce Point Capital Management vs. Planet Fitness)

Some financial analysts are blamed for using valuation models which are not suitable for the specific industries they cover – which allegedly results in a dubious investment narrative.

> Sell-side analysts are using technology-esque valuation models when the company is a traditional insurance company; equity raise likely required to satisfy surplus requirements. (May 31, 2016, Lambda Research vs. Trupanion)

In the next excerpt, analysts are criticized for using an inappropriate test:

> The leading industry journal specifically recommends two different tests than the one being used by ABEO. The non-recommended test is the one which analysts continue to cite as indication of strong results. (February 15, 2018, Richard Pearson vs. Abeona)

Some AShSs further argue that the valuation models used are outdated to build a proper investment narrative, or that the models are inadequate considering upcoming company events.

> As for valuation, using multiples of forecast EBITDA or earnings is a bit silly given the uncertain acquisition profile, though that hasn't stopped a few sell-side firms from trying. (September 12, 2016, Cable Car Capital vs. Cadiz)

Related to incorrect computations and inaccurate models, AShSs also point to superficial work performed by financial analysts. This excerpt illustrates this criticism.

> No analyst has conducted a forensic look at XPO's earnings quality. (December 13, 2018, Spruce Point Capital Management vs. XPO Logistics)

Earnings quality is an important concept in the financial analysis discipline (Koller, Goedhart & Wessels, 2020) and arguably is important in constituting a persuasive investment narrative. The excerpt above may reflect poorly on perceptions that the audiences may have regarding financial analysts' level of due diligence.

Generally, AShSs regularly complain about the insufficient amount of work carried out by financial analysts. They sometimes use humor to criticize their poor competence.

> Clearly, Wall St. analysts' are out of shape and have not gotten to the gym lately! (March 8, 2016, Spruce Point Capital Management vs. Planet Fitness)

This metaphor relates to the idea that financial analysts do not perform intellectual exercise and therefore deliver insufficiently thorough analyses.

The following quotation points to analysts' alleged carelessness, suggesting that their work is highly superficial and does not care about finding the truth.

> These are cash items, but again, no analyst will care or ever ask you about them. (December 12, 2018, GlassHouse Research vs. J2 Global)

4.2. Framing financial analysts as lacking critical thinking

In our empirical material, we found many instances where AShSs mention a lack of critical thinking, one of the key attributes of narrative authority highlighted by Leins (2018). These

attacks can be classified in the following categories of arguments: manipulation by managers, inadequate ethical behavior, lack or originality in narratives, and conflicts of interest.

4.2.1. Allegations that financial analysts are prone to be manipulated by managers

AShSs also stress that analysts are often deceived by the management of the firms they cover, which reveals their lack of ability to think on their own.

> While the 95.2% radiation reduction stat might fool analysts and investors, it's highly likely that physicians and cath lab administrators see right through it. (October 19, 2017, Cliffside Research vs. Corindus Vascular Robotics)

Financial analysts and corporate managers often adjust the performance measures they use to communicate with investors (Kolev, Marquardt & McVay, 2008). Adjusted (non-GAAP) measures may be manipulated, though (e.g., Bentley, Christensen, Gee & Whipple, 2018; Black, Christensen, Ciesielski & Whipple, 2018). AShSs frequently argue that financial analysts are not skeptical enough of such disclosures, as indicated in the next excerpt.

> Meanwhile, Wall St analysts are missing the forest for the trees, deriving their lofty EPS [earnings per share] estimates and, in turn, their lofty price targets from ENPH's inflated reported gross margin and guidance. (July 25, 2018, Prescience Point Capital Management vs. Emphase Energy)

Moreover, analysts are sometimes accused by AShSs of being unable to detect managers' earnings management, such as inappropriate expense capitalization which inflates earnings.

> Capitalizing expenses is the easiest way for CEOs and CFOs to create faux earnings in any given period. Prepaid expenses never get discussed on conference calls as analysts are too busy digesting management's guidance and updating their models. (July 19, 2018, GlassHouse Research vs. Aerojet Rocket)

4.2.2. Analysts' inadequate ethical behavior

Through their attacks pointing to a lack of analyst independence, AShSs often refer to some behavior or behavioral traits of analysts. The argument that financial analysts are "complacent" is quite frequent in AShSs' reports. The rationale is that complacency prevents analysts from writing appropriate investment narratives because of their lack of rigor and objectivity. For instance,

> Management's lack of disclosures regarding organic revenue makes it extremely easy for them to mask unfavorable organic revenue trends from complacent sell-side analysts. (December 12, 2018, GlassHouse Research vs. J2 Global)

Analysts can also be accused of unethical behavior, by manipulating their own valuation models to justify their opinion about the value of a stock:

> For the past 7 years, Wall Street research analysts have practiced the dark art of justifying a sky stock price by backfilling their model to try and support a current nosebleed price level. The beverage analysts are no different. (January 29, 2016, Citron Research vs Monster Beverage)

The argument that analysts are overly optimistic is present in many short sellers' reports. The following excerpt illustrates how this argument is presented to investors.

> But what do analysts think? They are usually an overwhelmingly optimistic bunch, so analysts placed an average $12 target. (July 7, 2016, The Street Sweeper vs. GenMark)

4.2.3. Lack of originality or skepticism

AShSs often mention that financial analysts obediently follow management's guidance, without a modicum of criticism or, simply, hindsight. Yet, professional skepticism is viewed in the financial analyst community as being important to build an appropriate investment narrative because, obviously, managers have incentives to present the performance of their company in a positive light to maximize their compensation and keep their top-level job (Foster, 2016). Therefore, analysts must exercise skepticism when incorporating management narratives and projections into their models to maintain their objectivity.

> Predictably, the sell-side analysts appear to have accepted this narrative and have immediately circled the wagons to defend Bank of The Internet. After the call, all four of BOFI's primary research firms upgraded the stock in notes that mostly restate management's talking points. (October 20, 2015, Marcus Aurelius Value vs. BofI Holding)

4.2.4. Conflicts of interest

AShSs often attack analysts on the ground of conflict of interests. The main argument is that analysts' investment narratives are biased due to their own financial interests. Some attacks can be general:

> Investment banks and their analysts love roll ups as well, as the constant stream of acquisitions provide continuing opportunities for transaction advisory and financings related to paying for them, both of which all add up to rich fees. (October 9, 2015, The Emperor Has No Clothes vs. Nobilis Health)

Some other attacks can be more specific and explicitly mention the name of the analysts being criticized:[22]

> […], an "analyst" currently working at Maxim, has been involved in recommending small cap biotech stocks for quite some time. Unfortunately, for those who thought his opinion was worth listening to, they appear to have experienced devastating losses. (August 18, 2015, Mako Research vs. Ocata Therapeutics)

The criticism of financial analysts acting as stock promoters is recurrent in many short sellers' reports, such as in the following excerpt:

> Despite having the worst quarter in Viveve's history in terms of revenue miss and net loss, the Company is still being hyped up by analysts that are financially biased. (June 12, 2018, White Diamond Research vs. Viveve)

[22] We have decided to anonymize the attacks mentioning the name of a specific analyst.

In the last excerpt, the allegation is that the investment bank that employs the analyst receives advising fees from a target firm. In exchange, the analyst produces positive investment narratives on the target firm. When this happens, this is a clear conflict of interest that violates ethical rules. This argument is quite frequent, as in the following excerpt.

> Matinas is being promoted by Sell Side Analyst Aegis. It's clearly biased as […], Head of Private Equity Banking at Aegis, is on Matinas' board of directors. Aegis is also being richly compensated by Matinas for being its Private Placement Agent. (March 24, 2017, White Diamond Research vs. Matinas)

Finally, some conflict of interest allegations are more general and target the entire financial analysts' profession. In this excerpt, the accusation relates to the context of corporate transactions (e.g., initial public offerings, mergers and acquisitions) which generate substantive fees for investment banks (Liaw, 2008, p. 54; Derrien & Dessaint, 2018):

> Oops. Our apologies. We are asking too many tough questions. We forgot that to be a successful sell-side analyst, your first job is to hide any possible data point that would paint your recent IPOs [initial public offerings] in a negative light. (April 6, 2015, The Friendly Bear vs. Freshpet)

In summary, we found that AShS reports develop accusations that call into question analysts' market expertise and critical thinking. These accusations tend to be written from a substantive angle, mobilizing some form of evidence. As a result, AShSs' allegations have a potential to be taken seriously by market participants, as indicated in some previous capital market research (Ljungqvist & Qian, 2016; Wong & Zhao, 2017; Black, 2018; Zhao, 2020; Brendel & Ryans, Forthcoming). Next, we investigate how analysts respond to the challenges raised by AShSs.

5. Responses from financial analysts

Our study reveals that for 95 campaigns, representing 66% of analysts' equity research reports, there is no sign of frontstage response to the attacks from AShSs. Given the weight of the absence of frontstage response in our sample, we begin this section with a detailed explanation of the main reasons for the absence of visible frontstage activities by financial analysts. Our interviews with AShSs and financial analysts uncovered the main reasons for this interesting finding and allowed to uncover the existence of certain backstage analysts' activities.

5.1. No (visible) response from financial analysts

In a way, such an apparent silence on the frontstage is an intriguing phenomenon for at least two reasons. First, financial analysts, in principle, are interested in the production of relevant information on the companies they follow. Leins (2018, p. 75-76) recalls that "analysts

collect information of all sorts and they strongly believe that any kind of information, independent of whether it is construed as economics in the narrow sense, can eventually affect future market developments". According to Ellul and Panayides (2018), analysts constantly look for relevant information about the firm they cover. Second, the excerpts from AShSs' reports above show the aggressiveness of the framing produced by AShSs. One could expect that the severity of such attacks would give analysts the willingness to react vigorously. The absence of visible response on potentially credible relevant narratives produced by AShSs, therefore, is a paradoxical finding.

The interviews we made with financial analysts and AShSs provide us with a rich set of data to make sense of the absence of frontstage reaction from financial analysts. However, importantly, before we analyze these different explanations, we have asked all our interviewees about the possibility that a financial analyst could simply not be aware of the existence of the AShS's report concerning a firm that she covers. This would be a simple explanation for finding no visible reaction. However, the answer is quite clear: the probability that a financial analyst would miss an AShS report is close to zero. The following two quotes from financial analysts are clear:

> Once it's public, everything flows. (...) If an [analyst] is not aware, he can change jobs. (Financial Analyst 3)
>
> Let her resign. In fact, the sell-side analyst is supposed to be an expert on the stocks she covers, or the sectors in which she is involved. (…) She is also supposed to have a very good knowledge of what is going on, so to be connected to investors who are exposed to these values and therefore to be also very quickly informed. (Financial Analyst 5)

We see that financial analysts view the fact of being informed about these market events as a core part of their job, which is in line with Leins (2018, p. 75-76). In a sense, not knowing would be perceived as a lack of market expertise, even a fireable offense as noted by some analysts. A similar view is shared by AShSs, as illustrated here:

> No chance. I mean, it is the sell-side analysts' job to aggregate all sort of salient market information in order to build a price target for a listed company. In doing so they would at least have to understand and address the prevailing market opinions, including like prevailing *dissenting* market opinions with respect to a listed company. I think there is zero chance. It is just their job to understand what people say about the businesses they cover. (Soren Aandahl, Blue Orca Capital, Activist short seller)

We identify five non-mutually exclusive reasons for the lack of frontstage activities: (1) financial analysts sometimes cannot respond to AShSs' criticisms because they agree that AShS have correctly identified a real problem with the target firm. Some analysts recognize the quality and depth of analyses performed by AShSs and some analysts even admire the work

of AShSs. (2) Because of their business model, financial analysts must maintain positive views on target firms to keep good relationship with managers. This makes frontstage responses particularly difficult to make, when they perceive that managers do not want to see any discussion of AShSs' allegations on financial markets. (3) Financial analysts often need to follow compliance procedures with the involvement of their firm's legal department to validate their equity research reports. This can limit their ability to engage in frontstage activities because there is a lot of uncertainty surrounding the validity of AShSs' accusations. (4) Financial analysts face a risk-reward dilemma if they engage with AShSs in the frontstage activities. They sometimes fear that the negative impact on their reputation would be too great if the AShSs' accusations against the firm are in fact correct. This can lead them to avoid any frontstage activities. (5) Financial analysts sometimes engage in backstage activities with certain audiences (e.g., their clients, buy-side analysts, investment managers) to sometimes rebut, confirm, or moderate AShSs' narratives.

5.1.1. Acknowledgment by financial analysts of the quality of AShSs work

In our interviews, a frequent reason for the absence of frontstage response from analysts was frequently mentioned by both side: sometimes it is simply the fact that analysts cannot find relevant arguments to address the AShSs' allegations. During our interviews with analysts, we were quite surprised to realize that financial analysts often respect the work of AShSs, and sometimes even admire them. This is evident in the following quotes:

> I saw it on firm XYZ, (…) I found it extremely interesting, very well written, very articulated, even if the guy has a clear bias because he is short, he will influence the market (Financial Analyst 3).
>
> My vision is favorable vis-à-vis their [AShSs'] work, they have a track record which pleads in their favor, because they have been the first to reveal certain frauds, which happened to be true (Financial Analyst 2).
>
> [About an activist short seller's research report] (…) I told myself "God, this is typically what an analyst should have done" (Financial Analyst 3).
>
> About firm XYZ, now five years ago, I think, they [an AShS] published a fantastic paper about corruption problems in certain countries such as Uzbekistan, Afghanistan, things like that, and they gave references in footnotes (…) (Financial Analyst 4)

Some financial analysts sometimes clearly explain that they do not respond because they do not have access to sufficient information to write a clear frontstage response.

> If there is no answer, it may also be that analysts do not have anything to counter the criticism because, (…), they are not auditors. (Financial Analyst 2)

This opinion is confirmed by several AShSs. They explain that when financial analysts think that they raised valid concerns it is probably best for financial analysts to avoid engaging in frontstage responses. This is clear in these two quotes:

> Because sometimes short sellers have done a good job, so there's not much to answer for. It would be incriminating her client if I use the lawyer's metaphor. (Arnaud Vagner, Iceberg Research, Activist short seller)
>
> What I actually think happens most of the time when the sell-side analysts believe that the short seller is likely correct, when they have been deceived by management, it is easier not to say anything at all. (Soren Aandahl, Blue Orca Capital, Activist short seller)

By avoiding a frontstage response, financial analysts avoid being drawn into a public debate that they may lose. Financial analysts may fear that a public debate would further destabilize their own narrative authority and reputation, especially if market participants, through this debate, become aware of the fragility of financial analysts' claims for expertise.

5.1.2. The financial analysts have a different business model

Many financial analysts and most AShSs explain that core differences in the business models of both parties can explain why analysts often avoid to make frontstage response. Indeed, because they sell access to managers for their clients, financial analysts must maintain good relationship with firms, which explain why they cannot be too critical of target firms publicly, even if they agree with AShSs' allegations. This is confirmed by several interviewees.

> As a sell-side analyst, if you are ever negative on [XYZ], what is the probability that you will be able to get the management of [XYZ] for a road show in London, Brussels or New York? (...) What we sell to clients is one, the expertise, two the possibility of meeting managers directly and asking them their questions directly, not with a filter which is the filter of the analysis. (Financial Analyst 4)
>
> The banker at his [i.e., the analyst] firm is very happy about his [positive] analysis, that the analyst butters up the company's CEO, because it will eventually help his relations; but that means that the critical thinking of the sell side is completely gone. I think that today a sell-side analyst cannot allow himself to be too critical with companies otherwise he will get yelled at internally, and people will remind him internally that "Thanks man! Because of you some doors are shut" (Financial Analyst 3).
>
> There is also simply the fact that economic dependence goes so far that mentioning the short seller on a sell side report will be frowned upon by the management of the company. Don't mention this name, it's annoying. (Arnaud Vagner, Iceberg Research, Activist short seller)

Some AShSs and analysts pointed to the difficulty of the position of sell-side analysts, in a market for sell-side research that has less and less value over time. An analyst explained that sell-side research has become "commoditized" (Financial Analyst 6). Other analysts mentioned the implication of MiFID II for the difficulty in the sell-side research sector (Fang, Hope, Huang & Moldovan, 2020). This difficult economic situation gives them little incentive to engage in frontstage activities. This quote from an AShS make a similar point:

(…) my point is that the compensation as well as the dignity of that vocation "sell-side analyst" has gradually eroded for the last 20 years. That's why I feel bad for them. (Daniel Yu, Gotham City Research, Active market participant)[23]

5.1.3. The financial analysts cannot reply due to compliance issues

Several financial analysts mentioned a legal restriction to explain the lack of frontstage response in the context of high uncertainties regarding the validity of AShSs' allegations. Financial analysts must sometimes require approval from their firm's legal department to issue a frontstage response in an equity research report. Their firm may be concerned about litigation costs if financial analysts publicly support the target firm's management when the AShSs' allegations are in fact accurate. The legal department may be reluctant to let financial analysts respond officially in their equity research reports. These two quotes illustrate this point.

The reason analysts don't respond, I'm not at all sure they don't (…) want to respond, I think it's their legal department telling them "we're not responding". (Financial Analyst 3)

I think it's her legal leeway [that is limited]. (Financial Analyst 5)

5.1.4. The financial analysts face a "risk/reward" dilemma and a reputation threat if they replie

An analyst mentioned an interesting argument explaining the high frequency of no frontstage response. Indeed, analysts face a risk/reward dilemma regarding the decision to reply to the attack. One must bear in mind that they are usually uncertain whether the AShS' allegations are accurate or not. The argument is that the potential reputation risk is much greater if the AShS is correct than is the reward if the AShS is incorrect.

But there is a risk reward story. That is, the analyst is attacked. So she counterattacks. If history proves her right, fine, she was right in the end and she should never have been attacked. But if she counter-attacks and is wrong in the end, and it was the short-seller who was right, then she takes a big hit on her reputation, and analysts often think in terms of risk/reward. (Financial Analyst 5)

Facing a reputation threat, many financial analysts apparently prefer not to react instead of having a visible reaction, which may increase public attention to their fragile position of narrative authority. In other words, an absence of response can be preferable to avoid aggravating the situation while protecting reputational risk. A case in point is the Commerzbank's financial analyst who covered and defended publicly Wirecard. The analyst was fired by her employer (Storbeck, 2021). This is illustrated by one of our interviewees:

If the whole idea of a sell-side analyst was that they are supposed to understand an underlying business, and you show that their understanding was gravely wrong, then, (…), it is going to impact whether people believe

[23] In our interview, Daniel Yu explained that he prefers to be referred as a "practitioner of free speech", "a guardian of free speech" and as an "active participant in financial markets" rather than an activist short seller.

and whether their bosses or their prospective employers believe that they can adequately analyze listed companies for sure. (Soren Aandahl, Blue Orca Capital, Activist short seller)

5.1.5. Analysts' backstage activities

Our interviews revealed the existence of backstage activities from financial analysts following attacks from AShSs. Indeed, there are sometimes important backstage interactions between the financial analysts and certain market participants. Some clients seek to obtain the views from financial analysts about the allegations by financial analysts. These backstage activities allow financial analysts more flexibility in their response strategy. Because these backstage activities are much less visible analysts can express more critical views about target firms while limiting their litigation and reputation risks. The existence of such activities were described by both financial analysts and AShSs. It is clear in the following quotes:

> That is, because of the constraints we are put in, (…) sometimes there is a verbal message only. (…) we can't write it, but we can say it, which sounds hypocritical because we all know we're on recorded lines, but it still limits the spread of the message, at least it distributes it nicely. (Financial Analyst 5)
>
> (…) the best way to engage the adversary, right, the public short seller, is to do nothing publicly while do something privately (Daniel Yu, Gotham City Research, active market participant)
>
> What a client wants is a contradiction between what Muddy Waters thinks and what the analyst thinks, and normally he has the confidence of his boss, N+1, and N+2 to say "I think Muddy Waters says things that are not true; I think that Muddy Waters shows things that, indeed, I did not see. (Financial Analyst 4)

One AShS stresses the dual level of narratives from financial analysts and highlights that backstage narratives are in fact more interesting than frontstage narratives.

> When you speak with them, you realize that, one, they are much smarter than what they write, two, they are much more critical, and so the main interest is to speak to them somehow. Not to read what they write. (Arnaud Vagner, Iceberg Research, Activist short seller)

While the dominant response is no frontstage response, often time, financial analysts have elements to engage activist short sellers and contest their framing. We present these replies in the following paragraphs. As mentioned in Section 2 above, not all framing efforts are successful (Himick & Brivot, 2018, p. 32) and frames can be followed by counter-frames. In the 138 analyst reports included in our study, which correspond to 48 campaigns (34% of 143 campaigns with attacks from activist short sellers and for which we were able to retrieve analysts' reports), we identified 290 replies. The counter-frame produced by analysts articulates two main ideas: (1) AShSs are the actor who lack market expertise and (2) AShSs lack objectivity.

5.2. Counter-framing activist short sellers as lacking market expertise

In the same way as AShSs challenged the narrative authority of financial analysts by framing them as lacking market expertise, financial analysts challenge in return the AShSs narrative authority by using a counter-frame based on a very similar argument.

5.2.1. Weakness in calculative expertise

Calculative expertise is a key attribute of narrative authority (Leins, 2018). To be perceived as an expert by market participant it is important to demonstrate calculative expertise. Therefore, financial analysts in their counter-frame attempt to reestablish their calculative expertise in their eyes of their audience. The following excerpt illustrates a challenge against technical points raised by AShS:

> We are still working our way through today's short report on XPO, but wanted to offer our initial observations. Most notable to us was slide 14... where the authors calculated free cash flow that is well below what the company reported. We note that the short report fails to add proceeds from asset sales, which contributed $79M and $69M to FCF [free cash flow] in 2017 and 2016, respectively. (December 13, 2018, Deutsche Bank Research, report related to December 13, 2018, Spruce Point Capital Management vs. XPO Logistics)

In this excerpt, the analyst invokes an "abnormality" in the calculations of Spruce Point, while referring to her knowledge of what is recognized as appropriate financial analysis in the sector. In her eyes, the criticisms made by the AShS regarding the "core" of analysts' expertise (in making fundamental calculations) are just unwarranted. We found many other instances of counter-framing tactics alleging wrong calculations or inaccuracies in AShSs' reports. For example,

> Addressing concerns raised in today's short report about the growth trajectory of the BetterHelp business, we analyzed similar Web data measuring daily usage of the BetterHelp Android app. Despite claims that YouTube-driven sign-ups were declining significantly, the data shows a 17%+ sequential increase in app utilization in October. (November 1, 2018, Jefferies, report related to November 1, 2018, The Friendly Bear vs. Teladoc)

Here, the analyst seems to follow up on the AShS's concerns while reaching an apparently reassuring finding with regard to the firm's performance, in the hope of reinforcing the analyst's investment narrative. In so doing, counter-framing promotes a sense that the extent of examination carried out by the analyst is thorough.

Analysts often question precise and technical aspects of AShSs' reports – thereby promoting their own financial expertise. For instance,

> Thoughts on Earnings Quality Raised By Short Report. One point of concern raised by the recent short report was quality of earnings. Our analysis suggests that ULTI's capitalization of sales commissions is consistent

with other multi-year contract subscription companies, with a minority of companies no longer capitalizing commissions. (January 26, 2017, Wedbush, report related to December 13, 2016, Spruce Point Capital Management vs. Ultimate Software)

The following example is extracted from an analyst report which is the second report published by the same analyst on the same day (this demonstrates the person's willingness to defend her narrative authority). The first report has already been mentioned above. In the second report, which was written after "a detailed look at the short report" (which showcases the analyst's expertise), we notice the use of the term "misleading" which is stronger than the terms used in the first report which pointed to a wrong calculation.

We have had a detailed look at the short report on XPO that was published this morning. In addition to no "smoking gun", we have found a number of highly misleading statements, and inaccuracies related to basic calculations. (December 13, 2018, Deutsche Bank Research, second report related to December 13, 2018, Spruce Point Capital Management vs. XPO Logistics)

This statement implies that the AShS mislead investors. The counter-frame becomes even stronger in a subsequent report by the same analyst.

This is Part 3 in a series of notes addressing points raised in the XPO short report (…). Our overarching conclusions are unchanged: that the short report is riddled with inaccuracies and misleading statements, with no implications, in our view, to the fundamental outlook for XPO shares. (December 26, 2018, Deutsche Bank Research, report related to December 13, 2018, Spruce Point Capital Management vs. XPO Logistics)

Many analyst reports include a strong vocabulary (e.g., "flawed", "without evidence", "misguided", "inflammatory", "lazy", "nonsense") to attack AShSs' calculations.

We believe a short report published this week on social media contained a flawed hypothesis and analysis without supporting evidence. (March 17, SunTrust, 2017, report related to March 15, 2017, Alpha Exposure vs Achaogen)

We think Citron Report is Misguided and Inflammatory. (January 20, 2017, SunTrust, report related to January 20, 2017, Citron Research vs TransDigm Group)

Some analysts highlight that some calculations from the original AShS's report have been amended, which is a sort of victory, although analysts deplore that some of the damages perpetrated are irreparable. Through the invocation of irreparable damages, the analysts promote the idea that the AShSs are manipulative and hurt good companies to mislead investors and make profits. This is potentially an important victory for financial analysts as they see the AShS changing her investment narrative, thereby providing analysts with a demonstrative platform to promote their superior calculative expertise to market participants.

Our read of 4Q18 expectations and overall sentiment: Neutral. The short seller report published last month was riddled with inaccuracies (…). While it has since been partially redacted and amended, the damage has been done with a wide number of investors deeming the stock "untouchable". (January 22, 2019, J.P. Morgan, report related to December 13, 2018, Spruce Point Capital Management vs. XPO Logistics)

5.2.2. Already-known problems

Another form of counter-framing is stressing that the AShS is reiterating already known problems. A market expert should strive to produce new relevant information not focusing on information already analyzed by investors. We found it on a regular basis in analysts' reports. This allows analysts to argue that there is nothing new in the AShSs' accusation, and that the analysts' original investment narrative already incorporated all relevant information. If this is true, then it implies that it is still valid.

> The qualitative aspects of the report are not new, in our view, with investor concerns around roll-up being there for several years. (December 13, 2018, Deutsche Bank Research, report related to December 13, 2018, Spruce Point Capital Management vs. XPO Logistics)

5.2.3. Capacity of the target's management to defend itself

Another counter-framing tactic is to emphasize management's rebuttal to the short seller's accusation. This is likely to be based on the argument that managers certainly know more about their business than "biased" and "external" short sellers. Managers are expert of their industry and analysts obtain information directly from them. Financial analysts and managers are on the same side, being more knowledgeable about the firm's reality and better positioned to produce an accurate investment narrative.

> This morning Maxar press released a comprehensive response to a Spruce Point Capital Management short report that was released on August 7th. Since then, Maxar's stock price declined ~23%. The response today from Maxar is detailed in its rebuttal. The key takeaways from the comprehensive response are the following: [followed by a summary of the company's rebuttal]. (August 24, 2018, National Bank of Canada, report related to August 7, 2018, Spruce Point Capital Management vs. Maxar)

5.2.4. Financial analysts can also identify original relevant information

Financial analysts also emphasize that short sellers do not have a monopoly over thorough investigation and the production of relevant facts about the target firm's financial position. The production of original analyses is a key component about market expertise.

> Following the recent short report, we have conducted a round of channel checks with ad exchanges and ad networks. Our conversations lead us to believe that MEET remains in healthy standing with these partners. We also conducted diligence on the accusation of violation of MoPub's terms of service and feel very confident with MEET's partnership. (August 17, 2016, Roth Capital Partners, report related to August 16, 2016, Friendly Bear vs. The Meet Group)

5.2.5. Buying opportunity

Financial analysts often argue in frontstage responses that the arguments put forward by AShSs are not grounded but the stock price of the target firm nevertheless declines. The logical

conclusion is to insist on a buying opportunity. Through this kind of "spin doctor" strategy, the analysts aim to reclaim their market expertise about investment opportunities.

> We view any weakness in the stock on this news as a buying opportunity. (April 7, 2016, Stephens, report related to April 7, 2016, Kerrisdale Capital Management vs ClubCorp Holdings)

5.2.6. History of errors

In another situation, analysts seek to undermine the expertise of AShSs by confronting them with a tangible difference between what AShSs expected in previous reports and actual results. Pointing to past errors can create doubts for analysts' audience about the true market expertise of AShSs.

> Lastly, we note that all short reports are not created equal. This particular firm forecasted an even greater downside in shares of transport company Echo Global Logistics over a year ago, with shares currently trading at over 4x levels predicted in the short report. (December 13, 2018, Deutsche Bank Research, report related to December 13, 2018, Spruce Point Capital Management vs. XPO Logistics)

This argument casts doubt on the AShS's ability to predict future stock prices. It aims to convince investors that financial analysts have superior abilities in predicting the future and building a convincing investment narrative.

5.2.7. Lack of understanding of the firm's business model

In the next excerpt, the analyst points to the AShS's lack of understanding of the target firm's business model, while using aggressive words ("fluffy", "zero credibility"). The analyst argues that the AShS engaged in impression management to convince investors that the attack against the target firm was substantiated with more evidence than what actually exists.

> Since the report manifested, we have taken a number of calls. Our takeaway of the report was that it holds zero credibility. Yes, the report looked long and meaty – but once you read through the note the facts in the piece were fluffy (at best), missing key facts, and exemplified a lack of understanding of NuVasive's business model. (October 25, 2017, J.P. Morgan, report related to September 19, 2017, GlassHouse Research vs. NuVasive Inc)

5.3. Counter-framing activist short sellers as lacking objectivity

Objectivity is another key attribute of narrative authority. To be worthy of the audience's attention, investment narratives must be free of any bias. While AShSs severely critic financial analysts' dependence on management, naturally financial analysts highlight the financial incentives of AShSs who profit from declining stock prices.

5.3.1. Conflicts of interest

This component of analysts' counter-frame can be very strong when the analyst points to a conflict of interests which casts doubt on the AShSs' objectivity. In so doing, the analyst

brings to the fore the financial incentive of the AShS to bring down the covered firm's stock price.

> Given that the source of the short report (Prescience Point Research Group) also is tied to a hedge fund (Spruce Point Capital) with an active short position, this calls into question objectivity, and that investors should take a similarly skeptical read to the author's approach. (April 6, 2017, Aegis Capital, report related to April 4, 2017, Prescience Point Capital Management vs Celadon)

Some attacks show a certain sense of humor while making a point about a lack of solid arguments about a covered firm.

> BURL chose not to pre-announce following its press release this past Monday, refuting a 3rd party short presentation which, in our opinion, was long on innuendo and short on quantitative substance (pardon the pun). (November 9, 2016, Cowen and Company, report related to November 3, 2016, Spruce Point Capital Management vs. Burlington Stores)

5.3.2. Reliance of extreme views

Financial analysts in their counter-frame they produce about AShSs, attack the fact that AShSs often tend to adopt extreme views. Such extreme views are incompatible with objectivity. The following example illustrates this position.

> The short report introduced little that was new, in our view, but took an extreme view that led to conclusions that we sharply disagree with. (2018, September 5, RBC Capital Markets, report related to 2018, August 7, Spruce Point Capital Management vs. Maxar)

6. Frontstage and backstage activities by financial analysts: Some exploratory evidence from stock recommendations and target prices

In this section, we explore whether we find evidence of frontstage and backstage activities using empirical archival data. In particular, we examine analysts' stock recommendations and target prices. Several financial analysts told us during our interviews that stock recommendations are more important to investors (and managers) than target prices. This view is clear in this quote:

> It is often what financial analysts do, they try to keep target prices that are not completely stratospheric in comparison to the current stock price because, anyway, what's important for investors is the stock recommendation, not really the target price. (Financial Analyst 2)

We exploit the differences between these two outputs from financial analysts to see whether financial analysts engage in different activities between frontstage revisions of stock recommendations and backstage revisions of target prices following the publication of AShSs' reports. We provide a full description of our empirical analysis in Online Appendix B.

Stock recommendations consist of a synthetic and clear investment advice for investors (e.g., "buy" or "sell" a stock). Stock recommendations are discrete and also less directly related to firm value (Bradshaw, Brown & Huang, 2013). Conversely, target prices consists of the subjective evaluation of a firm's intrinsic (i.e., fundamental) value, as determined by a financial analyst.[24] Target prices are derived from financial analysts' models and, in theory, are based on the analyst's fundamental valuation of a firm (i.e., her calculative expertise). Financial analysts tend to bear reputation costs if they issue inaccurate target prices (Kerl, 2011). Analysts' target prices reflect, in a single number, their view about the fundamental value of a stock. Therefore, changes of analysts' target prices are particularly relevant to examine whether they actually revise their opinion about a firm's "true" (or fundamental) value. If financial analysts truly believe that short sellers' allegations are unfounded they should: (1) not revised their stock recommendations and (2) not revise their target prices (at least not downward) following the dissemination of AShSs' allegations.

We find that financial analysts do not revise their stock recommendations after the publication of AShS. Target firms have on average 65% of buy recommendations before the publication of AShSs' reports (and 31% and 4% of neutral and sell recommendations, respectively) (please see Panel A of Online Appendix B, Table A2). These percentages do not change after the publication of AShS reports (see Table A3 and A5 in Online Appendix B). This is consistent with the frequent absence of frontstage response that we explain above because stock recommendations are the most visible output for firms with whom analysts have a commercial relationship.

Conversely, we find evidence that financial analysts revise downwards significantly their target price after the publication of AShSs' reports (see Tables A4 and A5 in Online Appendix B). We must stress that despite our efforts to employ a number of econometric techniques to control for confounding factors possibly influencing target prices (i.e., the use of control variables, various fixed effects, difference-in-differences setting, and propensity-score matching), we provide here evidence of association not causation.

Overall, financial analysts seem to adopt a double language in their outputs with a frontstage apparent absence of reaction of the AShSs attacks with no change in stock

[24] Target prices are often considered as a useful signal regarding firm valuation whereas earnings forecasts are short-term and less directly related to valuation. We do not examine revisions of earnings forecasts, which is a different indicator and for which past research (Richardson, Teoh & Wysocki, 2004; Brown, Call, Clement & Sharp, 2015, p. 19) has shown a phenomenon where analysts "walk down" their estimates to a level the firm can beat on the formal earnings announcement.

recommendations whereas they adjust some of their output backstage with a downward revision of their target prices. Whereas analysts tend either not to reply to the attacks or, when they respond, to proactively defy AShSs' attacks, they actually revise their target prices downward for the firms they cover, on average. These results are consistent with past research (Zhao, 2017) which has shown that financial analysts, on average, revise their numerical estimates about the value of target firms and their forecasts of target firms' financial performance following AShSs' allegations.[25] Our mixed research approach allows to obtain a highly coherent picture of the activities of financial analysts in response to AShSs between our qualitative research investigations and our quantitative research analyses.

7. Discussion and conclusion

This study sought to better understand narrative contests surrounding legitimate expertise in capital markets, specifically in interpreting firms' economic performance and future prospects. Fundamentally speaking, claiming this kind of expertise is challenging given that it implies the alteration of time boundaries (Kornberger, 2013) – i.e., to develop, in the present time, a credible interpretation of an uncertain economic future; the interpretation partially relies on the examination of historical data from the past. Undertaking an in-depth examination of the dynamics enfolding such narrative contests constitutes a meaningful endeavor since the field of academic economics – as well as the associated domains of financial accounting and finance have, by and large, neglected to consider and investigate the role of narratives in influencing the behavior of economic agents and institutions (Leins, 2018). We believe it is time for research in financial accounting and finance to engage with the construction of expertise and narrative authority in capital markets.

The contest for narrative authority we examine opposes AShSs to financial analysts. Conceptually, our study combines two important theoretical streams: narrative authority and framing. We examine the role of claims to expertise relative to other market experts in the development of narrative authority in interpreting meaningfully a firm's economic future. In our case, the ultimate audiences to which claims to expertise are targeted – i.e., the "tribunals"

[25] One factor that could explain why analysts frequently revise target prices downward following AShSs' report is social learning (Kaustia & Rantala, 2015). For instance, Do and Zhang (2020) document that the arrival of "star" financial analysts may improve the performance of incumbent analysts. In our setting, financial analysts may be more likely to revise their target price downward if they learn from AShSs or if some analysts covering the firm do so and other analysts learn from them.

that evaluate their meaningfulness, are ultimately made up of a multitude of investors whose individual behavior aggregates into stock price movements.

We found that AShSs question two key components of financial analysts' narrative authority, namely their market expertise and their critical thinking. In so doing, AShSs not only aim to undermine investors' confidence in the reliability of previous financial analysis reports and diagnoses surrounding a given firm – but they also seek to promote their own "superior" expertise or narrative authority in anticipating a firm's future. Further, our examination indicates that AShSs tend to aim for persuasiveness in developing their reports, which often include rationales supported with some evidential data.

Interestingly, there is little substantive accountability for sell-side financial analysts. The inaccuracy of analysts' stories faces relatively little negative consequences. Financial analysts are mostly subject to self-regulation (such as industry codes of conducts), threat to reputation, or eventual downgrade in rankings from financial media. Empirical evidence indicates that "buy" recommendations far outweigh "sell" recommendations by a factor that can reach 45 (Laderman, 1998; see also Bradshaw, Ertimur & O'Brien, 2017, p. 165). Analysts tend to be optimistic, to be overly influenced by good news than by bad news, and to praise management (Fogarty & Rogers, 2005).

It could have been expected that financial analysts would react vigorously and in visible ways to restore their legitimacy, for instance through demonizing the AShSs and reiterating the mythology that surrounds analysts' expertise (Lawrence & Suddaby, 2006, p. 230). Yet, we found that other types of responses tend to be privileged by financial analysts. On the one hand, analysts often decide not to respond to short sellers. This is a strategy of invisibility, preferring to stand away from public arenas and contentious debate. Conversely, analysts in a number of situations reply explicitly to short sellers by counter-framing them.

An evidential debate therefore opposes AShSs to analysts – which we maintain is a conceptual arena of significant interest in order to investigate processes by which expertise is constituted in contemporary economic settings. That is, the evidential debate arena constitutes a promising area for future research. For instance, Latour's (1987) theorizing could be mobilized to understand the process by which evidential claims either translate into solid facts or fragile artefacts depending on the reaction of the audience (investors). Experimental research may also seek to determine the extent to which different kinds of evidential claims exert influence on investors' mind.

That being said, perhaps our most surprising finding relates to the quest for narrative authority in the construction of investment narratives being carried out not through only frontstage activities – but also, through backstage activities.

Our study is not without limitations – which constitute promising avenues for future research. First, in the contest between AShSs and financial analysts, we analyze how narrative authority is challenged and defended. We do not examine the validity of the different claims and the possibility of identifying a clear "winner" in this contest. Empirical research could focus on the veracity of AShSs' accusations and of analysts' responses through longitudinal studies. Second, financial analysts are not a homogeneous group, and important differences exist between them: "star" analysts vs. "non-star" analysts, affiliated vs. unaffiliated analysts. Future research could examine the extent to which attacks from AShSs and reactions from financial analysts relate to these categories. Third, we have highlighted that many analysts do not engage in frontstage response to AShSs' attacks. To explain this intriguing phenomenon, a quantitative determinant study could identify explanatory factors, including, among others, the type and severity of AShSs' attacks (e.g., focus on lack of market expertise or lack of critical thinking) and the type of AShS (e.g., whether the AShS has a strong track record or not).

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Figure 1
The contest for narrative authority between market experts: main findings

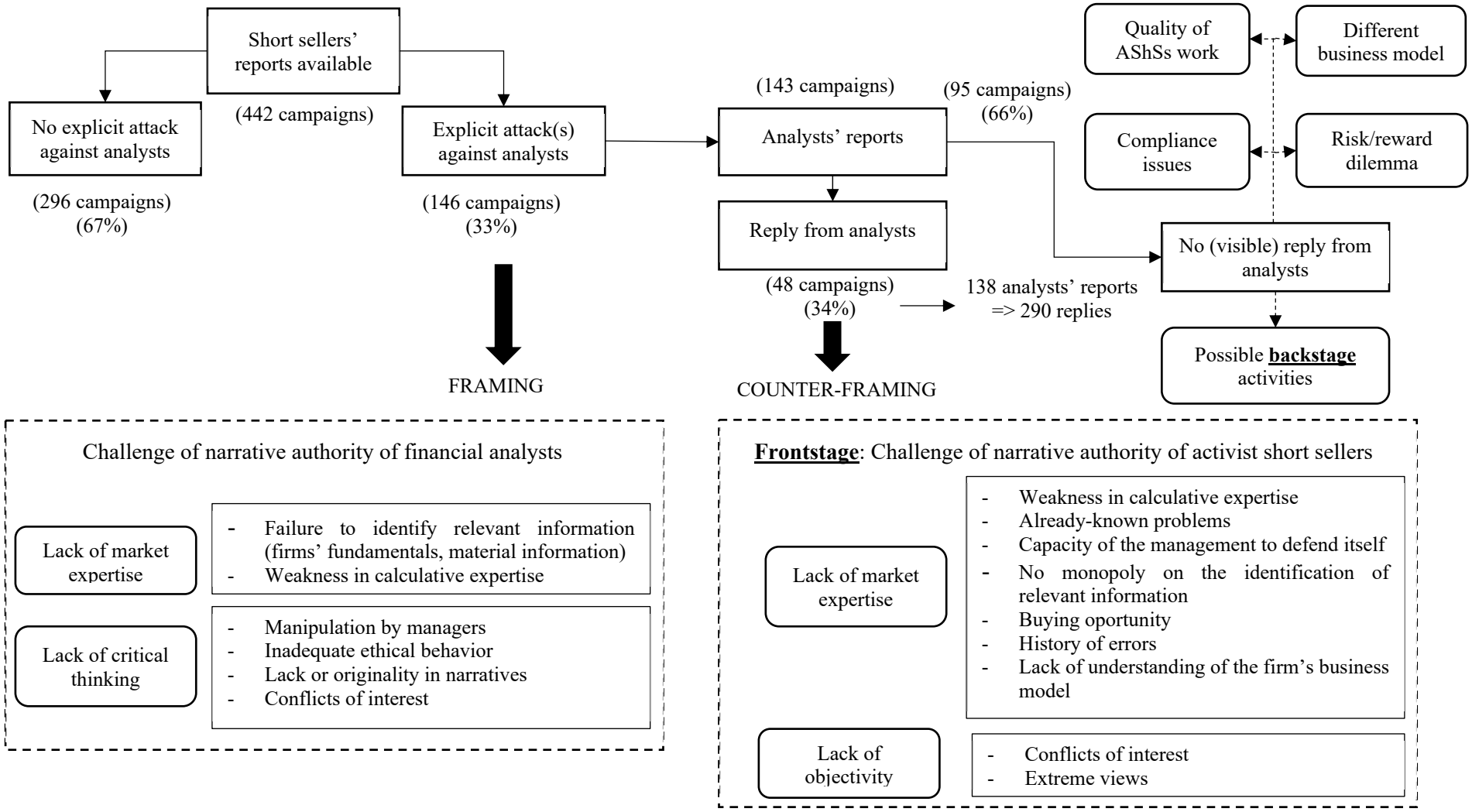

Table 1

Number of activist short sellers' campaigns and explicit attacks against financial analysts (2015-2018)

	Number of campaigns	ShS reports not available	ShS reports available	% reports available	Reports with attacks on analysts	% reports with attacks
2015	189	61	128	67.7%	34	26.6%
2016	187	68	119	63.6%	36	30.3%
2017	143	34	109	76.2%	37	33.9%
2018	100	14	86	86.0%	39	45.3%
Total	619	177	442	71.4%	146	33.0%

Table 1 shows the number of activist short seller campaigns per year and specifies the selection of our sample of activist short sellers' reports. The last two columns indicate, for each year, the number (and proportion) of short sellers' reports explicitly attacking financial analysts. ShS: short seller

Table 2

Overview of interviews

Interviewees	Duration (mn)	Date	Language	Interviewers
Financial Analyst 1	32	03/11/2020	French	Authors 1/2
Financial Analyst 2	45	03/10/2021	French	Authors 1/2
Financial Analyst 3	44	03/10/2021	French	Authors 1/2
Financial Analyst 4	36	03/11/2021	French	Author 2
Financial Analyst 5	36	03/18/2021	French	Author 2
Financial Analyst 6	45	04/29/2021	English	Authors 1/2
Activist short seller 1 (Arnaud Vagner, Iceberg Research)	34	03/16/2021	French	Authors 1/2
Activist short seller 2 (Fraser Perring, Zatarra Research then Viceroy Research)	44	03/26/2021	English	Author 2
Activist short seller 3 (Daniel Yu, Gotham City Research)	66	03/30/2021	English	Authors 1/2
Activist short seller 4 (Soren Aandahl, Blue Orca Capital)	27	03/30/2021	English	Author 1
Activist short seller 5 (Nate Koppikar, Orso Partners)	49	04/12/2021	English	Authors 1/2
Activist short seller 6 (Matt Earl, ShadowFall)	59	04/14/2021	English	Authors 1/2

Competing for narrative authority in capital markets: Activist short sellers vs. financial analysts

Supplementary data – Online appendices

Online appendix A. Interview guides

Online appendix B. The association between activist short sellers' campaigns and financial analysts' stock recommendations and target prices

Online appendix A. Interview guides

Interview guide for activist short sellers

- Can you tell us a little bit about your education and career background?
- What is your own role or function in this organization?
- How would you describe the mission of your organization?
- What are the main kinds of activity or work carried out in your organization?
- Do you have any type of inter-relationship with other investment research organizations? Other short sellers? Financial analysts?
- How do you view the work of sell side financial analysts?
- What is their role in financial markets?
- What would be a good equity research report for a financial analyst?
- What would you say are the main differences between your work and the work of sell side financial analysts?
- Why do you think activist short sellers sometimes criticize financial analysts?
- Do you think they can respond to short sellers when their work is criticized? Should they respond?
- In our data, we find that financial analysts often do not respond to short sellers (at least in their research reports) even when they are criticized by activist short sellers? Why do you think this is the case?
- Do you communicate with sell side financial analysts "off record"? Have you ever communicated a short seller report before making it public?
- Do you think your work can have negative consequences on financial analysts? For instance for their reputation?
- Do you think that due to your reports the work of financial analysts can appear to be less legitimate?
- Could your activities reduce the perception that financial analysts are expert of financial markets?
- Do you think analysts write convincing stories about investment opportunities?

Interview guide for financial analysts

- Could you tell us a little bit about yourself and your background?
- Could you tell us a little bit about your current work? And past work as a sell side financial analyst?
- What is your perception about the work of activist short sellers? Are you familiar with what they do?
- What is your view about the quality of the work they do? Their role in financial markets?
- Have you been directly confronted with the work of activist short sellers?
- Have you ever received short reports? Do you know if sell-side analysts sometimes receive the work of short sellers before it becomes publicly available?
- If not, are you still aware of the short report via another channel? For instance through the media or social media (e.g., Twitter, Seeking Alpha)?
- Do you think it is possible that a sell side analyst didn't hear about the short report of activist short sellers on a firm he or she covers?
- Do you communicate "off record" with activist short sellers? Are you aware of off record communication between sell side analysts and activist short sellers?
- If you are aware of the short report and are following the target, would you reply to the report?
- If yes, why? (And how? During a conference call or in your equity report?)
- If not, why? (Would you respond off record to clients and colleagues?)
- If you are not concerned by the report, what do you think of other analysts' attitude?
- Do you think activist short sellers can damage the reputation of a sell side analyst?
- Why many analysts don't reply to the short report, even if analysts are attacked?
- Why do you think some sell side analysts do respond officially in their equity reports?
- How do you communicate with clients about investment opportunities? How do you present / pitch your research in equity reports?
- What is a good equity research report?

Online appendix B. The association between activist short sellers' campaigns and financial analysts' stock recommendations and target prices

In this appendix, we test whether we obtain empirical support for the frontstage and backstage activities of financial analysts following the publication of AShSs' reports. In particular, we focus on the association between AShSs' campaigns and two key outputs of financial analysts: their stock recommendations (frontstage activity) and their target prices (backstage activity).

We download monthly stock recommendations and consensus (mean) target prices from IBES for our sample of 452 unique firms (targeted in 619 AShSs' campaigns) over the period 2015 to 2018 as well as several firms' financial characteristics from Compustat (i.e., firm size, firm profitability, tangibility, leverage, growth prospect, bankruptcy risk, and length of operating cycle, see Table A1). We obtain analysts' stock recommendations, analysts' target prices, and firms' financial data on 274 unique target firms (we lose target firms with missing consensus or financial variables). Table A2 provides descriptive statistics for all the variables for both target firms and control firms.

First, we examine the association between AShSs' report and analysts' stock recommendations over the 12 months after publication of AShSs' reports.[1] We do not extend the analysis after 12 months because we reason that one year allows sufficient time for financial analysts to revise (or not) their stock recommendations. Besides, extending the analysis after 12 months may lead to capturing confounding effects influencing financial analysts' target stock recommendations. Therefore, we estimate the following model for target firms:

$$MEANREC = b_0 + b_1\, Post + b_2\, NUMEST + b_3\, SIZE + b_4\, ROA + b_5\, PPE + b_6\, LEV + b_7\, TobinQ + b_8\, Zscore + b_9\, Operating\_Cycle + \text{Fixed Effects} + \varepsilon \quad (1)$$

where:

MEANREC = monthly mean IBES-compiled recommendation transformed on a numerical scale ranging from 1 to 5 (1= strong buy, 2 = buy, …, 4 = sell, 5 = strong sell)

Post = An indicator variable (specific only to the treated group) that takes the value of 1 for all periods starting from the event date, and 0 for all pre-event periods. If the firm is targeted multiple times over the sample period the dummy equals 1 after the first attack.

[1] We find similar evidence using either three or six months after the AShSs' reports.

The other variables are used as controls and are defined in Table A1. We include industry or firm, and calendar-year fixed effects and cluster standard errors at the firm and calendar-year level. In model (1), the main coefficient of interest is b_1 that measures differences in analysts' stock recommendations from before to after the AShSs' report. If financial analysts construct do not engage in visible frontstage activities then coefficient b_1 should be insignificant in model (1).

Second, we examine the change in target firms' consensus target price from before to after the first AShS's report. We examine the association between AShS's report and analysts' change of target price over three different time windows: over the first three months after the AShS report, over the first six months after the AShS report, and over the first 12 months after the AShS report. Again, we do not extend the analysis after 12 months because we reason that one year allows sufficient time for financial analysts to revise (or not) their target prices. Therefore, we estimate the following models over three different time windows in the post period (i.e., three months, six months and 12 months) for target firms:

$$\Delta Target\_Price = b_0 + b_1\, Post + b_2\, NUMEST + b_3\, SIZE + b_4\, ROA + b_5\, PPE + b_6\, LEV + b_7\, TobinQ + b_8\, Zscore + b_9\, Operating\_Cycle + \text{Fixed Effects} + \varepsilon \quad (2)$$

$$DowngradeTP = b_0 + b_1\, Post + b_2\, NUMEST + b_3\, SIZE + b_4\, ROA + b_5\, PPE + b_6\, LEV + b_7\, TobinQ + b_8\, Zscore + b_9\, Operating\_Cycle + \text{Fixed Effects} + \varepsilon \quad (3)$$

where:

$\Delta Target\_Price$ = Percentage change in the monthly average IBES-compiled mean target price relative to month t-1 (= target price(t) / target price (t-1) - 1)

DowngradeTP = A dummy equal to 1 if in month t the average IBES-compiled mean target price is lower than in month t-1, 0 otherwise.

The other variables are used as controls and are defined in Table A1. We also include industry or firm, and calendar-year fixed effects and cluster standard errors at the firm and calendar-year level. In model (1) (model (2)), the main coefficient of interest is b_1 that measures the percentage change in analysts' target prices (likelihood of downward revision of target prices) from before to after the AShS's report. If financial analysts engage in backstage activities and update their target prices then coefficient b_1 should be negative in model (1) and positive in model (2).

In additional robustness tests, we also compare the association between AShSs' publication of short reports and analysts' recommendations and revisions of target price estimates for two control samples: (1) non-target firms from the entire population of firms covered in IBES and Compustat over the sample period 2015-2018 (2,991 unique control firms), or (2) propensity

score matched (PSM) non-target firms over the sample period (271 matched control firms).[2] This analyses allow to examine whether financial analysts engage in frontstage and backstage activities differently for target firms after AShS's reports *relative to* other non-target firms. It controls for market-wide effects or observable target firm characteristics. We estimate the following OLS (or Logit) models:

$$\begin{aligned} MEANREC = {} & b_0 + b_1\, Treated + b_2\, Treated \times Post + b_3\, NUMEST + b_4\, SIZE + b_5\, ROA + b_6\, PPE \\ & + b_7\, LEV + b_8\, TobinQ + b_9\, Zscore + b_{10}\, Operating\_Cycle + \text{Fixed Effects} + \varepsilon \end{aligned} \quad (4)$$

$$\begin{aligned} \Delta Target\_Price = {} & b_0 + b_1\, Treated + b_2\, Treated \times Post + b_3\, NUMEST + b_4\, SIZE + b_5\, ROA + b_6\, PPE \\ & + b_7\, LEV + b_8\, TobinQ + b_9\, Zscore + b_{10}\, Operating\_Cycle + \text{Fixed Effects} + \varepsilon \end{aligned} \quad (5)$$

$$\begin{aligned} DowngradeTP = {} & b_0 + b_1\, Treated + b_2\, Treated \times Post + b_3\, NUMEST + b_4\, SIZE + b_5\, ROA + b_6\, PPE \\ & + b_7\, LEV + b_8\, TobinQ + b_9\, Zscore + b_{10}\, Operating\_Cycle + \text{Fixed Effects} + \varepsilon \end{aligned} \quad (6)$$

where:

Treated = A dummy equal to 1 if a firm is targeted in an AShS campaign, 0 otherwise.

Post = An indicator variable (specific only to the treated group) that takes the value of 1 for all periods starting from the event date (we focus on the 12 months after the AShS report), and 0 for all pre-event periods. If the firm is targeted multiple times over the sample period the dummy equals 1 after the first attack. Note that because there is staggering of events, all control firms (i.e., non-target firms) are automatically assigned *Post* = 0 so that *Treated* × *Post* and *Post* are the same.

The other variables are used as controls and are defined in Table A1. As in models (1), (2) and (3), we include industry or firm, and calendar-year fixed effects and cluster standard errors at the firm and calendar-year level. In models (4) and (5) the main coefficient of interest is b_2 that measures the difference between target and non-target firms in the stock recommendations and the percentage change in target prices, respectively, from before to after the AShSs' first allegations *relative to* control firms. In model (6), b_2 measure the difference in the likelihood of downward target price estimates from before to after the disclosure of AShSs' report relative to control firms. If financial analysts do not engage in frontstage activities while engaging in

[2] We use one-to-one matching without replacement and a maximum caliper distance of 1%. We obtain similar results with replacement or with lower or no maximum caliper distance. The model used to compute propensity scores for treated firms is $\Pr(Treated = 1) = b_0 + b_1\, NUMEST + b_2\, SIZE + b_3\, ROA + b_4\, PPE + b_5\, LEV + b_6\, TobinQ + b_7\, Zscore + b_8\, Operating\_Cycle + \text{Fixed Effects} + \varepsilon$. We include industry fixed effects and year-month fixed effects. We match 271 treated (attacked) firms.

backstage activities then then coefficient b_2 should be insignificant in model (4), significantly negative in model (5), and positive in model (6).

Table A2 shows descriptive statistics for target firms and compare the characteristics of target firms to the full IBES-Compustat control group and the propensity score matched control group. In Panel A of Table A2, we find that target firms have, on average, 65% of buy recommendations. Analysts issue hold recommendations for 31% of target firms, and very few target firms have sell recommendations (only 3.9% of target firms have sell recommendations). A comparison with firms not targeted by AShSs (control firms) indicate that financial analysts are more optimistic for target firms than they are for non-target firms. For instance, financial analysts issue buy recommendations for 65% of target firms whereas they have only 59% of buy recommendations for non-target firms (the difference is statistically significant).

Panel B of Table A2 shows that the mean (median) percentage change in target price is 0.6% (0.0%) and the average monthly frequency of downward revision of target prices is 29.3%. Panel C of Table A2 reports significant differences between target firms and the IBES-Compustat population over our sample period. Target firms are followed by more analysts (*NUMEST*), are smaller (*SIZE*), less profitable (*ROA*), have less tangible fixed assets (*PPE*), are more levered (*LEV*) and have higher prospective growth (*TobinQ*), a higher risk of bankruptcy (*Zscore*) and a shorter operating cycle (*Operating_Cycle*). Panel D of Table A2 reports the differences between treated and propensity-score-matched control firms. Propensity score matching eliminates all observable differences between treated and control firms except for analyst coverage (*NUMEST*), firm size (*SIZE*) and the tangibility of the balance sheet (*PPE*).

Table A3 reports the estimation results of model (1) in columns (1) and (2). It reports the estimation results examining the association between the disclosure of AShSs' reports and analysts' stock recommendation in the year following AShSs' allegations. Table A3 shows that there is no association between AShSs' publication of their report and subsequent analysts stock recommendations (see insignificant coefficient b_1 for *Post* in columns (1) and (2)). This is consistent with the argument that financial analysts do not engage in any frontstage activities for the target firms.

Table A4 reports the estimation results of model (1) in columns (1) and (2). It reports the estimation results examining the association between the disclosure of AShSs' reports and analysts' revision of their target prices (backstage activities) in the first three months following AShSs' allegations, Panel B for the first six months following AShSs' allegations, and Panel C for the first 12 months following AShSs' allegations.

In Panel A of Table A4, we find that financial analysts revise their target prices downwards for firms targeted by AShSs following AShSs' allegations (see negative coefficient of variable *Post*, b_1 = -0.009, significant at less than 5% in column (2)). We find a negative but insignificant coefficient in Column (1) (see negative coefficient b_1 = -0.004, t-stat = -1.24 in column (1)). We find evidence that financial analysts are more likely to revise target prices downward after AShSs' allegations using the likelihood of monthly downward change of target prices (*DowngradeTP*) of the consensus target price in columns (3) to (5). In a given month, financial analysts are between 4.6% and 5.3% more likely to downgrade a target firm (see positive coefficient b_1 = 0.046, significant at less than 5%, in column (3) and b_1 = 0.053, significant at less than 5%, in column (4)). This coefficient must be compared to the mean monthly likelihood of target price downgrade when there is no AShS attacks which is approximately 29% (see the mean of *DowngradeTP* in Panel A of Table A2).

In Panel B and Panel C of Table A4, we extend the duration of the post period to the first six months and 12 months after the AShSs' report, respectively. We find similar evidence that financial analysts revise the target prices of the firm they cover after the publication of AShSs' reports. From columns (1) and (2) of Panels B and C, we find that the magnitude of monthly target price revision ranges between -0.8% and -1.2% after AShSs' reports. We also find corroborating evidence using the likelihood of downward revisions in columns (3) to (5) of Panels B and C. The coefficients for *Post* are significant at less than 5% (see columns (4) of Panel B and columns (3) and (4) of Panel C) or at less than 1% in all other columns of Panels B and C. Assuming an average monthly change in the consensus target price of -1.0% for target firms; it indicates a change of target price of -12.0% over one year (= 12 × 0.01). We find similar evidence when we use a Logit estimation procedure instead of an OLS model in column (5) (see Panel C, positive coefficient b_1 = 0.235, significant at less than 1%, in column (5)).

In Table A5, we report the results of models (4), (5), and (6) that compare the association between AShSs' campaign and stock recommendations or change in target prices for attacked firms relative to control firms. Panel A compares differences in stock recommendations between target firms to the IBES-Compustat population whereas Panel B compares differences in stock recommendations for target firms to propensity-score-matched control firms. Panel A and Panel B of Table A5 show no association between AShSs' reports and analysts' subsequent stock recommendations (see insignificant coefficient b_2 in columns (1) and (2) of Panel A and B). This corroborates the no-frontstage reaction from financial analysts, on average.

Panel C compares differences in revisions of target prices between attacked firms to the IBES-Compustat population whereas Panel B compares differences in revisions of target prices for attacked firms to propensity-score-matched control firms.

In Panel C, we find that financial analysts revise their target prices downwards for firms targeted by AShSs following the month of allegations relative to other firms covered by financial analysts (see variable *Treated* × *Post*, negative coefficient b_2 = -0.008, significant at less than 1% in column (1), and b_2 = -0.009, significant at less than 1% in column (2)). We find corroborating evidence using the likelihood of monthly downward change of target prices (*DowngradeTP*) of the consensus target price in columns (3) to (5). In a given month, financial analysts are between 4.0% and 5.6% more likely to downgrade a target firm than a non-target firm after AShSs' allegations (see positive coefficient b_2 = 0.040, significant at less than 5%, in column (3) and b_2 = 0.056, significant at less than 1%, in column (4)). We find similar evidence when we use a Logit estimation procedure instead of an OLS model in column (5) (see positive coefficient b_2 = 0.217, significant at less than 1%, in column (5)).

In Panel D of Table A5, we run models (5) and (6) using the propensity-score-matched sample. This analysis allows to alleviate concerns that our results are driven by target firms' characteristics. We find similar evidence using the matched sample. Financial analysts tend to revise target prices of attacked firms downward relative to matched control firms. Target firms exhibit a change in the monthly consensus between 0.8% and 1.1% lower after AShSs' reports relative to matched control firms (see variable *Treated* × *Post*, coefficient b_2 = -0.008, significant at less than 1%, in column (1) and coefficient b_2 = -0.011, significant at less than 1%, in column (2)). We find corroborating evidence using the likelihood of monthly downward change of target prices of the consensus target price in columns (3) to (5) where the estimated coefficient b_2 for *Treated* × *Post* is significant at less than 5% (see column (3)) and at less than 1% (see column (4) and (5)).

Overall, our results support the existence of no frontstage reaction to AShSs and the existence of backstage activities by financial analysts. While financial analysts maintain a frontstage absence of response through no change in their stock recommendations, they actually tend to integrate AShSs allegations through backstage activities such as by revising their target prices after AShSs' allegations.

Table A1

Variable definitions

DEPENDENT VARIABLES	
MEANREC	monthly mean IBES-compiled recommendation transformed on a numerical scale ranging from 1 to 5 (1= strong buy, 2 = buy, …, 4 = sell, 5 = strong sell)
Δ*Target_Price*	Percentage change in the monthly average IBES-compiled mean target price relative to month t-1 (= target price(t) / target price (t-1) - 1)
DowngradeTP	A dummy equal to 1 if in month t the average IBES-compiled mean target price is lower than in month t-1, 0 otherwise.
INDEPENDENT VARIABLES	
Treated	A dummy equal to 1 if a firm is targeted in an AShS campaign, 0 otherwise.
Post	An indicator variable (specific only to the treated group) that takes the value of 1 for all periods starting from the event date, and 0 for all pre-event periods. If the firm is targeted multiple times over the sample period the dummy equals 1 after the first attack. Note that because there is staggering of events, all control firms (i.e., non-target firms) are automatically assigned *Post* = 0 so that *Treated* × *Post* and *Post* are the same.
Control variables	
NUMEST	Number of analysts covering the firm in month t
SIZE	Firm *i*'s natural logarithm of total assets in year y (AT) in millions of US dollars.
ROA	Firm *i*'s net income (NI) (in year y) divided by total assets (AT) of that same period.
PPE	Firm *i*'s gross PPE (PPEGT) (in quarter y) divided by total assets (AT) of that same period.
LEV	Firm *i*'s sum (in year y) of long-term debt (DLTT) and debt in current liabilities (DLC) divided by total assets (AT)
TobinQ	Firm *i*'s sum (in year y) of book value of debt and market value of equity scaled by total assets (AT),where market value of equity equals price per share times the total number of shares outstanding (PRCC*CSHO), and book value of debt equals total assets minus book value of equity (AT - CSTK)
Zscore	Firm *i*'s Altman (1968)'s Z-score (in year *t*), computed as: (3.3*EBIT + 1*sales + 1.2*current assets + 1.4*retained earnings) /total assets
Operating_Cycle	Firm *i*'s operating cycle in year y, calculated as: log ((receivables [RECT] / sales [SALE] + inventory [INVT] / cost of sales [COGS]) *360)

Table A2

Descriptive statistics of target firms and control firms

Panel A: Descriptive statistics of stock recommendations for target firms and control firms

Firms targeted by activist short sellers n = 274		Control firms n = 2,991	Diff.	Sig.
	Mean	mean		
Buy recommendations	65.3%	58.5%	6.8%	***
Hold recommendations	30.8%	36.3%	-5.5%	***
Sell recommendations	3.9%	5.2%	-1.3%	***
MEANREC	2.12	2.22	-0.1	***
NUMEST	10.2	9.7	0.5	***

Panel B: Descriptive statistics of target firms

	N	Mean	sd	p25	Median	p75
Δ*Target_Price*	7,185	0.006	0.075	-0.006	0.000	0.019
DowngradeTP	7,185	0.293	0.455	0.000	0.000	1.000
NUMEST	7,185	8.484	6.610	4.000	6.000	11.000
SIZE	7,185	6.780	1.931	5.366	6.704	7.966
ROA	7,185	-0.085	0.307	-0.124	0.020	0.077
PPE	7,185	0.403	0.378	0.134	0.270	0.543
LEV	7,185	0.335	0.334	0.011	0.287	0.512
TobinQ	7,185	4.000	3.470	1.674	2.613	4.957
Zscore	7,185	0.520	3.863	-0.112	1.475	2.707
Operating_Cycle	7,185	4.524	0.946	3.960	4.590	5.193

Panel C: Descriptive statistics of target firms and all control firms covered in IBES-Compustat

Firms targeted by activist short sellers n = 274				Control firms n = 2,991			Diff.	Sig.
	N	Mean	Median	N	Mean	Median		
Δ*Target_Price*	7,185	0.006	0.000	103,878	0.003	0.000	0.003	***
DowngradeTP	7,185	0.293	0.000	103,878	0.289	0.000	0.004	
NUMEST	7,185	8.484	6.000	103,878	8.149	6.000	0.335	***
SIZE	7,185	6.780	6.704	103,878	7.410	7.378	-0.629	***
ROA	7,185	-0.085	0.020	103,878	-0.012	0.034	-0.073	***
PPE	7,185	0.403	0.270	103,878	0.540	0.382	-0.137	***
LEV	7,185	0.335	0.287	103,878	0.290	0.257	0.045	***
TobinQ	7,185	4.000	2.613	103,878	2.528	1.769	1.472	***
Zscore	7,185	0.520	1.475	103,878	1.201	1.625	-0.681	***
Operating_Cycle	7,185	4.524	4.590	103,878	4.576	4.638	-0.052	***

Panel D: Descriptive statistics of target firms and propensity-score-matched control firms

Firms targeted by activist short sellers n = 271				Matched control firms n = 271			Diff.	Sig.
	N	Mean	Median	N	Mean	Median		
Δ*Target_Price*	7,064	0.006	0.000	7,064	0.006	0.000	0.000	
DowngradeTP	7,064	0.293	0.000	7,064	0.297	0.000	-0.003	
NUMEST	7,064	8.491	6.000	7,064	9.323	7.000	-0.833	***
SIZE	7,064	6.790	6.705	7,064	6.932	6.928	-0.143	***
ROA	7,064	-0.081	0.020	7,064	-0.080	0.029	-0.001	
PPE	7,064	0.404	0.270	7,064	0.384	0.269	0.019	***
LEV	7,064	0.329	0.286	7,064	0.327	0.270	0.002	
TobinQ	7,064	3.924	2.595	7,064	3.957	2.513	-0.033	
Zscore	7,064	0.549	1.469	7,064	0.574	1.584	-0.025	
Operating_Cycle	7,064	4.521	4.589	7,064	4.517	4.581	0.003	

Table A2 reports descriptive statistic for firms targeted by AShSs and comparisons with descriptive statistics for two control groups. The table reports monthly observations. The target firms are firms identified in the Activist Insight database and matched to IBES and Compustat. In Panel B, the control sample are all firms with available data in IBES and Compustat. In Panel C, the control firms are obtained after propensity score matching. We use one-to-one matching without replacement and a maximum caliper distance of 1%. The model used to compute propensity scores is $\Pr(\textit{Treated} = 1) = b_0 + b_1\ \textit{NUMEST} + b_2\ \textit{SIZE} + b_3\ \textit{ROA} + b_4\ \textit{PPE} + b_5\ \textit{LEV} + b_6\ \textit{TobinQ} + b_7\ \textit{Zscore} + b_8\ \textit{Operating\_Cycle}$ + Fixed Effects + ε. We include industry fixed effects and year-month fixed effects. All variables are defined in Table A1. The *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table A3

The effect of activist short sellers' campaigns on financial analysts' stock recommendations: do financial analysts revise their stock recommendations?

$$MEANREC = b_0 + b_1\ Post + b_2\ NUMEST + b_3\ SIZE + b_4\ ROA + b_5\ PPE + b_6\ LEV + b_7\ TobinQ + b_8\ Zscore + b_9\ Operating\_Cycle + \text{Fixed Effects} + \varepsilon$$

Revision of stock recommendation in the 12 months after the short seller report		
	(1)	(2)
Dep. Var:	*MEANREC*	*MEANREC*
Post	0.015	-0.008
	(0.41)	(-0.33)
NUMEST	0.006	-0.027***
	(0.94)	(-4.19)
SIZE	0.047*	-0.094*
	(2.00)	(-1.93)
ROA	0.116	0.001
	(0.89)	(0.01)
PPE	0.130	0.081
	(1.64)	(0.95)
LEV	-0.103	0.064
	(-1.34)	(0.88)
TobinQ	-0.011	-0.016**
	(-1.39)	(-2.47)
Zscore	-0.005	0.002
	(-0.51)	(0.15)
Operating_Cycle	0.019	-0.025
	(0.60)	(-0.66)
Constant	1.694***	3.109***
	(8.66)	(8.45)
Industry FE	Yes	No
Firm FE	No	Yes
Calendar month FE	Yes	Yes
Estimation	OLS	OLS
Observations	7,158	7,158
Adj. R^2 / Pseudo R^2	0.2104	0.7563

All variables are defined in Table A1. Standard errors are clustered at the firm and calendar-year level. The *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table A4

The effect of activist short sellers' campaigns on financial analysts' target prices: do financial analysts revise their target prices?

Columns (1) and (2) report the estimation results of the following OLS model:

$$\Delta Target\_Price = b_0 + b_1\ Post + b_2\ NUMEST + b_3\ SIZE + b_4\ ROA + b_5\ PPE + b_6\ LEV + b_7\ TobinQ + b_8\ Zscore + b_9\ Operating\_Cycle + \text{Fixed Effects} + \varepsilon \quad (1)$$

Columns (3) and (4) and column (5) report the estimation results of the following OLS (columns (3) and (4)) and Logit model (column (5)):

$$DowngradeTP = b_0 + b_1\ Post + b_2\ NUMEST + b_3\ SIZE + b_4\ ROA + b_5\ PPE + b_6\ LEV + b_7\ TobinQ + b_8\ Zscore + b_9\ Operating\_Cycle + \text{Fixed Effects} + \varepsilon \quad (2)$$

Panel A: Analysts' change in target price three months after activist short sellers' reports

	Revision of target price in the first **three months** after the short seller report				
	(1)	(2)	(3)	(4)	(5)
Dep. Var:	*ΔTarget_Price*	*ΔTarget_Price*	*DowngradeTP*	*DowngradeTP*	*DowngradeTP*
Post	-0.004	-0.009**	0.046**	0.053**	0.274***
	(-1.24)	(-2.24)	(2.45)	(2.57)	(3.13)
NUMEST	-0.000	-0.002*	0.010***	0.011	0.054***
	(-1.50)	(-1.96)	(4.46)	(1.54)	(6.84)
SIZE	0.000	-0.014*	0.003	0.099**	0.012
	(0.25)	(-1.78)	(0.36)	(2.02)	(0.36)
ROA	0.039***	0.070***	-0.168***	-0.310***	-1.068***
	(4.72)	(3.00)	(-3.72)	(-2.68)	(-4.54)
PPE	-0.008*	-0.010	0.034	-0.034	0.170
	(-1.67)	(-0.59)	(1.29)	(-0.31)	(1.32)
LEV	-0.004	0.005	0.068**	-0.015	0.445***
	(-0.88)	(0.63)	(2.14)	(-0.32)	(3.73)
TobinQ	0.005***	0.007***	-0.017***	-0.023***	-0.117***
	(9.06)	(7.57)	(-6.10)	(-3.97)	(-7.92)
Zscore	-0.000	0.000	0.006*	-0.000	0.044**
	(-0.01)	(0.13)	(1.83)	(-0.03)	(2.16)
Operating_Cycle	-0.002	-0.003	0.007	0.033	0.037
	(-1.31)	(-0.74)	(0.64)	(1.34)	(0.70)
Constant	-0.001	-0.093**	0.199***	0.327	-2.363***
	(-0.10)	(-2.13)	(4.33)	(1.23)	(-4.83)
Industry FE	Yes	No	Yes	No	Yes
Firm FE	No	Yes	No	Yes	No
Calendar month FE	Yes	Yes	Yes	Yes	Yes
Estimation	OLS	OLS	OLS	OLS	Logit
Observations	5,254	5,254	5,254	5,254	5,243
Adj. R^2 / Pseudo R^2	0.0889	0.1185	0.1150	0.1505	0.114

Panel B: Analysts' change in target price six months after activist short sellers' reports

	Revision of target price in the first **six months** after the short seller report				
	(1)	(2)	(3)	(4)	(5)
Dep. Var:	*ΔTarget_Price*	*ΔTarget_Price*	*DowngradeTP*	*DowngradeTP*	*DowngradeTP*
Post	-0.008***	-0.011***	0.046***	0.045**	0.273***
	(-3.12)	(-3.13)	(2.72)	(2.26)	(3.74)
NUMEST	-0.000	-0.002**	0.010***	0.012*	0.056***
	(-1.10)	(-2.04)	(5.02)	(1.66)	(7.59)
SIZE	0.000	-0.015**	0.001	0.091**	0.002
	(0.27)	(-2.08)	(0.15)	(2.03)	(0.08)
ROA	0.039***	0.072***	-0.168***	-0.269***	-1.036***
	(4.74)	(3.46)	(-3.88)	(-2.62)	(-4.83)
PPE	-0.009**	-0.028**	0.044*	0.039	0.220*
	(-1.97)	(-2.11)	(1.79)	(0.51)	(1.89)
LEV	-0.002	0.009	0.057*	-0.027	0.379***
	(-0.60)	(1.21)	(1.87)	(-0.55)	(3.38)
TobinQ	0.005***	0.007***	-0.018***	-0.022***	-0.120***
	(10.57)	(8.50)	(-7.04)	(-4.52)	(-8.77)
Zscore	0.000	0.000	0.006*	-0.001	0.038**
	(0.18)	(0.26)	(1.76)	(-0.07)	(2.08)
Operating_Cycle	-0.001	-0.005	0.006	0.042*	0.031
	(-0.73)	(-1.24)	(0.60)	(1.94)	(0.63)
Constant	0.004	0.131***	0.170***	-0.563*	-2.325***
	(0.40)	(2.91)	(2.89)	(-1.93)	(-4.98)
Industry FE	Yes	No	Yes	No	Yes
Firm FE	No	Yes	No	Yes	No
Calendar month FE	Yes	Yes	Yes	Yes	Yes
Estimation	OLS	OLS	OLS	OLS	Logit
Observations	5,932	5,932	5,932	5,932	5,915
Adj. R^2 / Pseudo R^2	0.0915	0.1168	0.1099	0.1397	0.108

Panel C: Analysts' change in target price 12 months after activist short sellers' reports

	Revision of target price in the first **12 months** after the short seller report				
	(1)	(2)	(3)	(4)	(5)
Dep. Var:	*ΔTarget_Price*	*ΔTarget_Price*	*DowngradeTP*	*DowngradeTP*	*DowngradeTP*
Post	-0.009***	-0.012***	0.040**	0.050**	0.235***
	(-3.79)	(-3.45)	(2.53)	(2.49)	(3.68)
NUMEST	-0.000**	-0.002**	0.011***	0.013**	0.059***
	(-2.09)	(-2.43)	(6.42)	(2.17)	(8.87)
SIZE	0.001	-0.018***	-0.000	0.089**	-0.006
	(1.36)	(-2.79)	(-0.04)	(2.24)	(-0.21)
ROA	0.038***	0.058***	-0.176***	-0.267***	-1.047***
	(5.13)	(3.39)	(-4.55)	(-3.23)	(-5.38)
PPE	-0.007**	-0.029***	0.051**	0.081	0.262**
	(-2.09)	(-3.04)	(2.24)	(1.50)	(2.53)
LEV	-0.002	0.010	0.036	-0.040	0.256**
	(-0.53)	(1.37)	(1.28)	(-0.88)	(2.53)
TobinQ	0.005***	0.008***	-0.018***	-0.026***	-0.120***
	(11.56)	(9.88)	(-8.08)	(-6.12)	(-9.88)
Zscore	0.000	0.002	0.007**	-0.001	0.047***
	(0.14)	(1.24)	(2.53)	(-0.08)	(2.82)
Operating_Cycle	-0.000	-0.001	0.006	0.026	0.030
	(-0.13)	(-0.16)	(0.57)	(1.30)	(0.69)
Constant	-0.007	0.134***	0.181***	-0.495*	-2.069***
	(-0.74)	(3.04)	(3.22)	(-1.88)	(-4.89)
Industry FE	Yes	No	Yes	No	Yes
Firm FE	No	Yes	No	Yes	No
Calendar month FE	Yes	Yes	Yes	Yes	Yes
Estimation	OLS	OLS	OLS	OLS	Logit
Observations	7,185	7,185	7,185	7,185	7,185
Adj. R^2 / Pseudo R^2	0.0879	0.1114	0.1034	0.1308	0.0999

All variables are defined in Table A1. Standard errors are clustered at the firm and calendar-year level. The *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

TABLE A5

Difference-in-differences analyses

Panel A and Panel B report the estimation of the following OLS model:

$$MEANREC = b_0 + b_1\ Treated + b_2\ Treated \times Post + b_3\ NUMEST + b_4\ SIZE + b_5\ ROA + b_6\ PPE + b_7\ LEV + b_8\ TobinQ + b_9\ Zscore + b_{10}\ Operating\_Cycle + \text{Fixed Effects} + \varepsilon$$

Panels C and D, columns (1) and (2) report the estimation results of the following OLS model:

$$\Delta Target\_Price = b_0 + b_1\ Treated + b_2\ Treated \times Post + b_3\ NUMEST + b_4\ SIZE + b_5\ ROA + b_6\ PPE + b_7\ LEV + b_8\ TobinQ + \text{Fixed Effects} + \varepsilon$$

In Panel C and D, columns (3), (4) and (5) report the estimation results of the following OLS (columns (3) and (4)) and Logit model (column (5)):

$$DowngradeTP = b_0 + b_1\ Treated + b_2\ Treated \times Post + b_3\ NUMEST + b_4\ SIZE + b_5\ ROA + b_6\ PPE + b_7\ LEV + b_8\ TobinQ + \text{Fixed Effects} + \varepsilon$$

Panel A: Difference-in-differences analysis of analysts' stock recommendations

	Revision of stock recommendations in the 12 months after the short seller report	
	(1)	(2)
Dep. Var:	*MEANREC*	*MEANREC*
Treated	-0.032	
	(-1.05)	
Treated × Post	0.017	0.015
	(0.53)	(0.64)
NUMEST	0.001	-0.018***
	(0.45)	(-8.44)
SIZE	0.033***	-0.066**
	(3.77)	(-2.62)
ROA	0.073	-0.096**
	(1.40)	(-2.05)
PPE	0.124***	0.039
	(4.90)	(1.09)
LEV	-0.031	0.019
	(-0.93)	(0.63)
TobinQ	-0.018***	-0.020***
	(-5.79)	(-6.25)
Zscore	0.005	-0.005
	(1.28)	(-0.98)
Operating_Cycle	0.018	-0.010
	(1.57)	(-0.98)
Industry FE	Yes	No
Firm FE	No	Yes
Calendar month FE	Yes	Yes
Estimation	OLS	OLS
Observations	110,417	110,379
Adj. R^2 / Pseudo R^2	0.0882	0.6882

Panel B: Difference-in-differences analysis on matched sample of analysts' stock recommendations

Revision of stock recommendations in the 12 months after the short seller report		
	(1)	(2)
Dep. Var:	*MEANREC*	*MEANREC*
Treated	-0.036	
	(-1.14)	
Treated × *Post*	0.022	-0.009
	(0.70)	(-0.38)
NUMEST	-0.001	-0.027***
	(-0.26)	(-4.99)
SIZE	0.053***	-0.090**
	(4.01)	(-2.43)
ROA	0.161*	-0.036
	(1.95)	(-0.37)
PPE	0.171***	0.049
	(3.32)	(0.69)
LEV	-0.084*	0.039
	(-1.80)	(0.73)
TobinQ	-0.011**	-0.014***
	(-2.62)	(-2.78)
Zscore	-0.006	0.006
	(-0.95)	(0.78)
Operating_Cycle	0.025	-0.010
	(1.35)	(-0.33)
Industry FE	Yes	No
Firm FE	No	Yes
Calendar month FE	Yes	Yes
Estimation	OLS	OLS
Observations	14,070	13,850
Adj. R^2 / Pseudo R^2	0.1463	0.7924

Panel C: Difference-in-differences using the full sample as control firms

	Revision of target price in the first 12 months after the short seller report				
	(1)	(2)	(3)	(4)	(5)
Dep. Var:	*ΔTarget_Price*	*ΔTarget_Price*	*DowngradeTP*	*DowngradeTP*	*DowngradeTP*
Treated	0.003**		0.001		0.005
	(2.42)		(0.09)		(0.14)
Treated × Post	-0.008***	-0.009***	0.040**	0.056***	0.217***
	(-3.50)	(-3.67)	(2.57)	(3.38)	(3.88)
NUMEST	-0.000***	-0.002***	0.010***	0.014***	0.049***
	(-4.79)	(-5.67)	(13.79)	(7.02)	(37.17)
SIZE	0.001***	-0.006*	0.008***	0.077***	0.046***
	(4.21)	(-1.98)	(3.61)	(4.40)	(8.57)
ROA	0.030***	0.043***	-0.184***	-0.195***	-1.089***
	(7.60)	(6.23)	(-9.63)	(-5.45)	(-18.00)
PPE	0.002	0.004	-0.012	-0.048**	-0.065***
	(1.33)	(0.98)	(-1.48)	(-2.03)	(-3.03)
LEV	-0.003**	-0.009***	0.036***	0.050**	0.236***
	(-2.40)	(-2.77)	(3.74)	(2.43)	(7.84)
TobinQ	0.005***	0.007***	-0.019***	-0.030***	-0.119***
	(12.90)	(10.97)	(-12.69)	(-9.80)	(-27.37)
Zscore	-0.000	-0.001	0.004***	-0.002	0.030***
	(-0.36)	(-0.69)	(3.29)	(-0.39)	(6.70)
Operating_Cycle	-0.000	0.001	0.001	-0.003	0.006
	(-0.71)	(1.05)	(0.20)	(-0.41)	(0.55)
Industry FE	Yes	No	Yes	No	Yes
Firm FE	No	Yes	No	Yes	No
Calendar month FE	Yes	Yes	Yes	Yes	Yes
Estimation	OLS	OLS	OLS	OLS	Logit
Observations	111,063	111,025	111,063	111,025	111,063
Adj. R^2 / Pseudo R^2	0.0686	0.0920	0.0870	0.1273	0.0747

Panel D: Difference-in-differences using propensity-score-matched control firms

	Revision of target price in the first 12 months after the short seller report				
	(1)	(2)	(3)	(4)	(5)
Dep. Var:	*ΔTarget_Price*	*ΔTarget_Price*	*DowngradeTP*	*DowngradeTP*	*DowngradeTP*
Treated	0.004***		-0.013		-0.074
	(2.98)		(-1.12)		(-1.62)
Treated × Post	-0.008***	-0.011***	0.039**	0.053***	0.214***
	(-3.66)	(-3.67)	(2.57)	(2.96)	(3.67)
NUMEST	-0.000**	-0.001	0.009***	0.006	0.045***
	(-2.24)	(-0.97)	(6.77)	(1.29)	(10.80)
SIZE	0.001*	-0.019***	0.005	0.102***	0.025
	(1.95)	(-2.79)	(1.06)	(2.75)	(1.36)
ROA	0.029***	0.041***	-0.166***	-0.207***	-0.985***
	(4.67)	(3.33)	(-4.80)	(-3.07)	(-7.28)
PPE	-0.002	-0.020***	0.025	0.071	0.120*
	(-0.70)	(-2.74)	(1.57)	(1.35)	(1.70)
LEV	-0.001	0.007	0.015	-0.047	0.116
	(-0.32)	(1.16)	(0.76)	(-1.23)	(1.60)
TobinQ	0.004***	0.007***	-0.016***	-0.027***	-0.102***
	(9.60)	(9.42)	(-7.94)	(-6.59)	(-12.39)
Zscore	0.000	0.001	0.007***	0.002	0.047***
	(0.84)	(1.45)	(3.00)	(0.28)	(4.22)
Operating_Cycle	-0.001	-0.001	0.003	0.019	0.013
	(-1.55)	(-0.56)	(0.43)	(1.14)	(0.49)
Industry FE	Yes	No	Yes	No	Yes
Firm FE	No	Yes	No	Yes	No
Calendar month FE	Yes	Yes	Yes	Yes	Yes
Estimation	OLS	OLS	OLS	OLS	Logit
Observations	14,128	13,906	14,128	13,906	14,128
Adj. R^2 / Pseudo R^2	0.0782	0.1092	0.0882	0.1433	0.0803

All variables are defined in Table A1. Standard errors are clustered at the firm and calendar-year level. The *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.