

# Distracted Institutional Investors

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December 23, 2015

## ABSTRACT

We investigate how distraction affects the trading behavior of professional asset managers. Exploring detailed transaction-level data, we show that managers with a large fraction of portfolio stocks exhibiting an earnings announcement are significantly less likely to trade in *other* stocks, suggesting that these announcements absorb attention which is missing for the choice of which stocks to trade. Hence, attention constraints can be binding even among this elite group of traders. Finally, we identify two channels through which distraction hurts managers' performance: distracted managers fail to close losing positions and incur slightly higher transaction costs.

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\* Preliminary and incomplete, please do not cite without permission. Daniel Schmidt is at HEC Paris, 1 rue de la Liberation, 78350 Jouy-en-Josas, France. Email: [schmidt@hec.fr](mailto:schmidt@hec.fr). We acknowledge support by a public grant overseen by the French National Research Agency (ANR) as part of the « Investissements d'Avenir » program (Idex Grant Agreement No. ANR -11- IDEX-0003-02 / Labex ECODEC No. ANR - 11-LABEX-0047).

Attention is scarce. Yet, we know very little about how limited attention affects the trading behavior and performance of institutional asset managers—arguably the most important class of investors in financial markets today.<sup>1</sup> This lack of knowledge may arise for two reasons. First, professional investors employ significant resources to overcome attention constraints: they hire additional research staff, acquire access to real-time news feeds and invest in computer capacities for algorithmic trading or smart order-routing. Hence, institutional asset managers are assumed to be less attention-constrained to begin with. Second, any empirical investigation in this domain faces the problem that attention is unobserved and plagued by endogeneity.

In this paper, we propose a way to address this empirical challenge and—in doing so—uncover *well-identified* evidence suggesting that attention constraints can be binding even for professional asset managers. Specifically, exploiting detailed transaction-level data for a large sample of U.S. institutional investors, we are able to identify attention shifts between different stocks that are on the “radar screen” of a particular investor. Exploring the ramifications of such attention shifts, we shed light on a number of important questions: How severe are attention constraints among professional investors? Through exactly which channel do they operate? And how does inattention affect trade performance?

Our identification builds on the premise that an investor cannot pay equal attention to all stocks. He will thus have to focus on a subset or “watchlist” of stocks. To see the idea, consider the following example: There are two investors—1 and 2. Investor 1 watches stocks A and B. Investor 2 watches stocks A and C. Suppose there is important news about stock B, but not

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<sup>1</sup> Stambaugh (2014) reports that, at the end of 2012, roughly 22% of U.S. equity was directly owned by individuals. The flip side of this is that more than 75% of equity ownership is delegated in one way or another.

about stock C. Under limited attention, we expect investor 1 to pay less attention to stock A compared to investor 2. The reason is that, unlike investor 2, investor 1 needs to digest and respond to the news of stock B, which distracts him from trading in stock A. In another period, stock C may have important news and we would then expect investor 2 to be distracted relative to investor 1. By comparing the trading of investors 1 and 2 in the same stock, our identification exploits such attention redirections at the *investor-stock-time level*.

An appealing feature of the three-dimensional data structure (investor×stock×time) is that it provides substantial cross-sectional and time-series variation in investor distraction—variation that we exploit to our advantage in the regression approach. In particular, through high-dimensional fixed effects, we can absorb a large fraction of the variation in trading activity which could be a source of endogeneity. For example, whether or not a stock has important news in a given week is itself an important determinant of trading activity. Through the inclusion of *stock×date* fixed effects, we ensure that our results are not driven by such stock-level effects. Similarly, institutions may have different preferences for certain stocks, and these preferences could be correlated with their trading response. By including *stock×manager* fixed effects, we control for such time-invariant preferences. In effect, our results are identified from comparing the trading activity *of different investors in the same stock at the same point in time*. We view our identification strategy to be a significant improvement over prior studies in this field.

Our institutional transaction data comes from ANcerno Ltd, a consulting firm that helps institutional investors to monitor their trading costs. Prior research finds that ANcerno trades represent approximately 10% of all institutional trading volume in the U.S. and that they are not significantly different from trades made by the average U.S. institutional investor (Puckett

and Yan, 2011; Anand et al., 2012). The key feature of this data is that, in addition to detailed trading records, it provides a unique identifier for the trading institutions. This enables us to implement our identification strategy at the level of the institutional investor.<sup>2</sup>

Specifically, by following institutional investors over time, we construct two different versions of institutional “watchlists”; i.e., stocks that these investors pay attention to. Our first version, which we label *ANCerno watchlist*, is based on past trading: we simply assume that all stocks that the investor traded in the previous 12 weeks are on the investor’s watchlist. The second version, which we label *13f watchlist*, is based on portfolio holdings at the end of the previous quarter as reported on form 13f. We verify that both watchlists highly predict future trading, and much better so than randomly-assigned placebo watchlists. Hence, both watchlists capture investor attention as intended. At the same time, since there is only limited overlap between them,<sup>3</sup> showing results for both watchlists provides an important consistency check for our approach.

We use quarterly earnings announcement dates to proxy for important stock news. Indeed, earnings announcements are arguably the most important recurring news events for individual stocks, justifying their preeminent role in the literature on public information disclosures (see, e.g., Beaver, 1968; Aharony and Swary, 1980; Bernard and Thomas, 1989; Kim and Verreccia, 1994). Institutional investors have the professional mandate to keep their

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<sup>2</sup> Ideally, we would want to conduct our analysis at the fund-level. Unfortunately, the ANcerno data does not provide a unique fund identifier, and we are thus forced to work at the level of the institution. To the degree that attention constraints really operate at the fund-level, our distraction measures contain measurement error which could lead to an attenuation bias. Hence, the distraction effects documented in this paper can be understood as a lower bound estimate of the real attention constraints faced by institutional investors.

<sup>3</sup> Two reasons are responsible for the limited overlap. First, since the 13f watchlist requires a valid link between ANcerno and 13f, we lose a significant number of institutional investors in this subsample. Second, even when there is a link, recent trading and prior holdings are not the same. A manager can make frequent round-trip trades in a stock (in which case it only appears in the ANcerno watchlist), and he can hold on to a stock bought long time ago (in which case it only appears in the 13f watchlist).

fingers on the pulse of stock market developments. As such, they routinely attend earnings conference calls and, when the news is substantial, they may swiftly rescale their position (e.g., Bushee et al, 2011). All this requires attention—attention that we argue is missing for trading in other stocks. Our primary distraction proxy is thus the (weighted) fraction of stocks on the investor’s watchlist that exhibit an earnings announcement in a given period.<sup>4</sup> Importantly, when we construct the distraction measure for a given stock and investor, we calculate this fraction by summing over all *other* stocks on the investor’s watchlist. Thus, our measure captures distraction coming from other stocks on the watchlist.

Our first finding, summarized in Figure 1, is that institutional investors are significantly less likely to trade in a given stock when there are many earnings announcements for other stocks on their watchlist. An increase from the bottom to the top quartile of distraction reduces the propensity to trade in a given stock by 3-4%. For the subset of managers that follow active investment strategies; i.e., those that are not identified as quasi-indexers according to the investor classification by Bushee and Noe (2000) and Bushee (2001), the effect increases to up to 8%. As explained earlier, these results obtain in panel regressions that control for both stock×time and stock×manager fixed effects, thereby removing endogeneity concerns arising from unobserved stock-level shocks or fixed investor preferences.

In contrast to the strong effect at the extensive margin, we find no distraction effect at the intensive margin. That is, conditional on trading in a given stock, institutional investors do not trade less when there are many earnings announcements for watchlist stocks. This no-result flies in the face of standard models of information acquisition in which inattentive investors

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<sup>4</sup> The weights correspond to the relative importance of a stock in the watchlist, where relative importance is measured by the fraction of dollar volume for the ANcerno watchlist and by the fraction of portfolio holdings for the 13f watchlist.

adjust at the intensive margin how much information to gather (e.g., Verrecchia, 1982; Van Nieuwerburgh and Veldkamp, 2010). Instead, our results suggest that, even among professional traders, attention is better modeled in terms of a fixed cost to searching and trading in a particular stock (akin to the recognition cost in Merton, 1987).

We then conduct two sample splits that help to reinforce our distraction interpretation. First, we show that the distraction effect is stronger for managers that trade actively, where activeness is proxied by the intensity of rebalancing trades as opposed to flow-induced trades. Since the former involve a stock selection choice, whereas the latter amount to a mechanical rescaling of existing positions, we expect rebalancing trades to be more susceptible to distraction and this is what we find. Second, we show that our results are concentrated for institutions with a diverse watchlist across industries. This is intuitive as a stock's earnings announcement is also news to other stocks in the same industry. Hence, institutions with a high industry concentration may be attracted to rather than distracted from trading other watchlist stocks.

Next, we investigate three channels through which distraction may affect managers' performance. First, distraction may affect the future performance of trades. On the one hand, distracted managers may limit trading activity to their best trades, which would boost average trade profitability. On the other hand, distracted managers may spend less effort searching for good trade opportunities, which should hurt their trade performance. Second, distraction may affect performance through the positions that are not traded. Indeed, distracted managers may fail to close their positions at the right time, causing them to underperform going forward. Third, distracted managers may incur higher transaction costs. This prediction is motivated by microstructure models suggesting that limited attention

exposes limit order users to the risk of being “picked-off” or not executed (e.g., Dugast, 2014). Moreover, attention-constrained investors may spend less effort bargaining with dealers and/or searching for the best quotes. These effects could be at work even when order execution is outsourced to brokers, as distracted institutions may send their orders with delay and thus higher urgency.

We find strong evidence for the second channel, but not for the first one. That is, distracted managers neglect to close positions that lose money over the subsequent year. Hence, rather than the actual trades themselves, it is the failure to trade which causes distracted managers to underperform their peers. Finally, we also uncover weak evidence for the third channel: compared to other managers trading in the same stock, distracted managers seem to incur higher transaction spreads on their trades, but this effect is economically small.

Our paper contributes to the literature on inattention in financial markets (see, for instance, Cohen and Frazzini, 2008, DellaVigna and Pollet, 2009, and Hirshleifer et al., 2009). While this literature has been burgeoning, there are only few papers that specifically focus on professional investors—presumably because these investors are assumed to be less attention constrained to begin with<sup>5</sup>. Fang et al. (2014) show that certain mutual funds persistently buy into stocks that have been covered in the media, and that these funds underperform relative to other funds. They interpret their findings as indirect evidence for the presence of attention constraints among this subset of mutual funds. Lu et al. (2015) collect a sample of marriage

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<sup>5</sup> Another reason is that broad proxies for investor attention (such as trading volume) do not allow to disentangle between retail and institutional investors’ attention. Peress and Schmidt (2014) study the impact of sensational news episodes like the O.J. Simpson trial and argue that they have a distracting effect on retail investors. Any additional effect on institutional trading could be the indirect response to the reduced trading needs by retail investors.

and divorce events for hedge fund managers and find that their performance suffers during those events. Ben-Rephael et al. (2015) propose search volume on Bloomberg terminals as a proxy for institutional attention and show that it correlates with the timely incorporation of earnings news. Kempf et al. (2014) explore a similar identification approach to ours, but aggregated and at lower frequency, to study how shareholder distraction affects corporate actions. They find that firms with distracted shareholders engage more in value-destroying acquisitions, presumably because of less intense monitoring. By looking at individual trades of institutional investors, our paper improves on the identification and allows studying the *exact channel* of how inattention manifests itself in trading behavior and performance.

The paper proceeds as follows. Section 1 describes the data. Section 2 presents our empirical hypotheses and introduces the identification approach. Section 3 considers the effect of institutional distraction on trading activity. Section 4 studies how distraction affects performance. Section 5 presents robustness checks and Section 6 concludes.

## I. Data

### A. Institutional Trading Data

We obtain institutional trading data from ANcerno Ltd (formerly known as Abel Noser Solutions), a leading transaction cost consultant for institutional investors.<sup>6</sup> Puckett and Yan (2011) report that ANcerno trades represent approximately 10% of institutional trading volume in U.S. equities. While institutional investors subscribing to ANcerno are relatively large (they include plan sponsors like CalPERS and money managers such as Fidelity), their

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<sup>6</sup> Previous papers using this data include Goldstein et al. (2009), Chemmanur et al. (2009), Puckett and Yan (2011), Anand et al. (2012), Franzoni and Plazzi (2013), Eisele et al. (2013), Hu et al. (2014), Jame (2014), Chakrabarty et al. (2014), Ben-Rephael and Israelson (2014) and Goetzmann et al. (2014).



trades and stock holdings have been found to be comparable to those of the average investor in the universe of institutional asset management. Our sample period starts in January 1999 and ends in June 2011, after which ANcerno stopped the provision of an identifier for the trading institution.

Each row in the ANcerno dataset represents an executed trade, including information on the date and time of the trade, identity of the stock traded, trade direction (buy or sell), number of shares traded, transaction price, and commissions paid. One crucial feature of the ANcerno data for our purpose is that it contains a unique identifier corresponding to the management company executing the trade (*manager code*). We also have access to a reference file that links manager codes to the names of those companies. Ideally, we would want to have identification at the fund-level; however, the ANcerno data does not provide this information.<sup>7</sup> Hence, we are forced to conduct our analysis at the manager-level. We have 835 different managers in our sample.

In order to gauge the performance of institutional trades over various holding periods, we map stock returns from CRSP onto the ANcerno trades.<sup>8</sup> Since we conduct our main analyses at the manager-stock-time level, working at daily frequency becomes computationally infeasible. We therefore aggregate trades at weekly frequency.

### *B. Link to 13F*

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<sup>7</sup> ANcerno contains an additional variable called *clientmgrcode*. However, interactions with ANcerno as well as our reading of the literature convince us that this is not a unique fund identifier. For instance, Jame (2014) writes (see footnote 9): “discussions with ANcerno representatives indicate that different clientmgrcodes within a client-manager generally do not reflect different fund products.”

<sup>8</sup> See Appendix A for details.

Using the manager names available to us, we hand-match ANcerno managers to institutional holdings data reported in 13f.<sup>9</sup> We are able to find corresponding 13f information for 670 out of the 835 managers in our sample. This match serves several purposes. First, we use it to obtain a link to static investor characteristics reported on Brian Bushee’s website. We are particularly interested in the classification of managers into “quasi-indexers” and others,<sup>10</sup> as we expect distraction effects to be weaker for managers following passive investment strategies. Second, we construct a matched sample between ANcerno and 13f which allows to control for the level and change of managers’ assets under management. Third, as detailed below, we exploit holdings data to assemble the list of stocks held by each manager at the end of the previous quarter.

### C. Watchlist Construction

Our identification rests on the assumption that investors pay more attention to some stocks than to others. This assumption is tested below. We will say that investors have a *watchlist* of stocks, and we call such stocks *watchlist stocks*. We construct two different watchlists for each manager-week pair. Our first version, labelled *ANcerno watchlist*, reflects past trading. More specifically, a given stock  $i$  enters the watchlist of manager  $m$  in week  $t$  when the manager was trading the stock in the previous 12 weeks. Let  $w_{imt}^a$  be the watchlist weight of stock  $i$ , defined as the share of past trading volume going to the stock:

$$w_{imt}^a = \frac{\text{trading volume in stock } i \text{ in the past 12 weeks}}{\text{total trading volume in the past 12 weeks}}$$

<sup>9</sup> See Appendix B for details.

<sup>10</sup> More precisely, Bushee and Noe (2001) and Bushee (2002) classify managers into three categories: quasi-indexers, transient and dedicated investors. The latter two categories differ mainly in their trading activity. Since results for these two categories are similar and since we have no expectation as to which group should be more affected, we merge them in our analysis. The investor classification data is available at: <http://acct.wharton.upenn.edu/faculty/bushee/IIclass.html>.

Below, we use this weight when we construct average distraction measures across watchlist stocks.

Our second watchlist, labelled *13f watchlist*, is based on portfolio holdings: a given stock  $i$  enters this watchlist if manager  $m$  reported a positive holding in the stock at the end of the quarter prior to week  $t$ . Let  $w_{imt}^h$  be the portfolio weight of stock  $i$ , defined as:

$$w_{imt}^h = \frac{\text{dollar value of position in stock } i \text{ at the end of the previous quarter}}{\text{total dollar value of positions at the end of the previous quarter}}$$

Note that there is only a limited overlap between the trade-based ANcerno watchlist and the holdings-based 13f watchlist. There are two reasons for this. First, we are simply not able to find 13f holdings data for approximately 65% of the manager-quarters in our ANcerno data. Second, even when there is a match, trades and holdings yield different watchlists because (i) a manager can quickly trade in and out of a stock (in which case the stock enters the trade-based watchlist), and (ii) a manager can report holdings for stocks which he did not trade recently (in which case the stock is in the holdings-based watchlist). As such, we prefer to report results using both watchlists.

#### *D. Trade Persistence*

If our watchlists capture stocks that managers are paying attention to, we expect those stocks to be traded with higher propensity than a random sample of stocks. To test this prediction, we construct randomly-assigned placebo watchlists in the following way. First, we randomly reshuffle the trades and holdings data, while maintaining differences in trade (holding)

intensities across managers and stocks.<sup>11</sup> Second, we use this reshuffled data to construct new trade-based and holdings-based watchlists (called ANcerno-placebo and 13f-placebo). We then compare the fraction of watchlist stocks that are traded in a given week across the different watchlists. Figure 2 plots the evolution of this fraction over time. The important thing to notice is that, for the ANcerno and the 13f watchlists, the average fraction of traded watchlist stocks always exceeds the one for the placebo watchlists: whereas the average fraction for the ANcerno and the 13f watchlist equals 20.4% and 13.3%, respectively, it hovers around 3-4% for the placebo ones. Table 1 Panel B shows that these differences are highly statistically significant (with t-statistics of 40 and 12, respectively). These results give us confidence that our watchlists indeed capture what they are intended to capture.

#### *E. Earnings Announcement Dates*

We study how news events in some watchlist stocks affect trading in other watchlist stocks. To proxy for news events, we use earnings announcement dates from I/B/E/S and Compustat. Earnings announcements arguably constitute the most important recurring news releases for individual firms;<sup>12</sup> they receive significant media attention and institutional investors routinely attend earnings conference calls. As such, they are well suited for our analysis.

Following DellaVigna and Pollet (2009), we use the earlier of the dates in I/B/E/S and Compustat when the two dates do not coincide for the same fiscal quarter. We drop the earnings announcement when the firm had another announcement less than 11 days earlier. We define an earnings announcement dummy,  $EA\ dummy_{it}$ , that takes the value of one if firm

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<sup>11</sup> Specifically, when a manager was trading (holding) 100 different stocks in the original data for a given week, the placebo watchlists will also feature 100 different stocks (which are randomly assigned) for this manager in that week.

<sup>12</sup> See, e.g., Beaver (1968), Aharony and Swary (1980), Bernard and Thomas (1989), and Kim and Verrecchia (1994).

$i$  had an earnings announcement in week  $t$  and zero otherwise.<sup>13</sup> Overall, we have 274,840 earnings announcement weeks, representing roughly 8% of all stock-week observations in our sample period.

## II. Methodology and Hypotheses

### A. Distraction Measure

The key idea that we exploit in this paper is that different managers are exposed to different news shocks over time. By comparing their trading activity in a given stock, we can isolate such distraction effects from any potential stock-specific reasons why managers may want to trade that stock (e.g., whether the stock is in the news itself).

We now explain how we construct our distraction measure. Recall that  $w_{jmt}^a$  and  $w_{jmt}^h$  are the weights of stock  $j$  in manager  $m$ 's trade-based and holdings-based watchlist, respectively, and that  $EA\ dummy_{jt}$  flags stocks with an earnings announcement. For a given stock  $i$ , manager  $m$  and week  $t$ , our distraction measure is the weighted fraction of watchlist stocks with an earnings announcement:

$$distraction_{imt} = \frac{\sum_{j \neq i} w_{jmt}^x \times EA\ dummy_{jt}}{\sum_{j \neq i} w_{jmt}^x}$$

where  $x \in \{a, h\}$ . Importantly, the weighted average is formed over all watchlist stocks *excluding* the stock in question. Hence, the measure is not affected by whether stock  $i$  itself

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<sup>13</sup> Earnings announcements on a Friday are treated slightly differently. As we don't have the exact time of the announcement, we are not sure whether the earnings news is priced in on Friday or on Monday of the following week. For this reason,  $EA\ dummy$  is set to one for both weeks  $t$  and  $t + 1$  when the announcement occurred on a Friday.

has an earnings announcement. Note also that our distraction measure always lies between 0 and 1 by definition.

Table 1 Panel A shows descriptive statistics for our distraction measure and the other variables used in this study. We see that, for the median manager in our samples, roughly 3.1% of watchlist stocks exhibit an earnings announcement in a given week. The standard deviation of this measure exceeds 10%, ensuring that we have sufficient variation in distraction. We also see that the median manager in the ANcerno sample trades a given watchlist stock approximately on three different days over the course of 12 weeks and has a weekly trading volume of 1.3\$ billion. For the 13f sample, the median manager trades slightly less but has more assets under management.

### *B. Regression Methodology*

Having defined the distraction measure, we now explain our regression approach. The main specification is

$$\begin{aligned} trade\ activity_{imt} = & \alpha_{it} + \alpha_{im} + \beta\ distraction_{imt} + \gamma\ trade\ number_{imt} \\ & + \delta\ managercontrols_{mt} + \varepsilon_{imt} \end{aligned} \tag{1}$$

where  $trade\ activity_{imt}$  is one of the outcome variables introduced below. In principle, each manager could trade every available stock, resulting in an enormous data matrix of possible trades. Working with such a dataset is neither feasible nor desirable (because there would be zero trading for a vast majority of observations). We therefore estimate specification (1) only on the subset of watchlist stocks for each manager.

One crucial feature of our empirical setting is the three-dimensional data structure, which enables us to soak up a great deal of the cross-variation in trading activity through the

inclusion of various fixed effects. For example, in any week, certain stocks happen to attract significant trading, perhaps because they exhibit an earnings announcement or are the target of takeover speculation. Suppose further that distracted managers concentrate on such attention-grabbing stocks (Barber and Odean, 2008), whereas non-distracted ones also trade in other stocks. As a result, distracted managers could appear as being relatively more active, which would confound our identification. Next, consider the stock-manager dimension. Different managers choose to trade different stocks for reasons which are largely unobserved. To the extent that such predispositions correlate with our distraction measure, a naïve comparison of the trading activity across distracted and non-distracted managers is again bound to be seriously confounded. The inclusion of stock×date ( $\alpha_{it}$ ) and stock×manager ( $\alpha_{im}$ ) fixed effects in specification (1) immunize us against these and related concerns.<sup>14</sup>

In addition to these high-dimensional fixed effects, we include a number of control variables. First, because trading is relatively sticky, we include a measure of past trading activity. Specifically, *trade number* is the number of days in which manager  $m$  traded stock  $i$  within the previous 12 weeks. Second, to account for time-varying manager characteristics, we include several proxies of manager size: the logarithm of the manager’s dollar trading volume in the past 12 weeks and the level and change of assets under management at the end of the previous quarter. Note that with the inclusion of the latter two controls, our sample reduces to the subset of manager-quarters for which we could find corresponding 13f holdings. Hence, we show results with and without the inclusion of these controls. Finally, we note that standard errors are clustered at the manager level.

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<sup>14</sup> As our identification draws on the comparison *across* managers with different levels of distraction, we cannot include fund×date fixed effects in our specification. Indeed, we can show that, when such fixed effects are included, distraction for non-announcing stocks is not distinguishable from attraction to announcing stocks. In other words, the within-manager variation in our distraction measure is not meaningful in our setting.

### C. Hypotheses

When it comes to the impact of attention (or the lack thereof) on investor behavior, trading activity should be affected in one way or another. We consider two ways how this can occur. First, there may be an *extensive margin* effect on the propensity to trade in a given stock. Such an effect would indicate that there are significant *search costs* for deciding in which stock to trade. When investors are attention constrained, they are less likely to incur this cost, leading them to forego trading. To capture such an extensive margin effect, we define *trade dummy* $_{imt}$  that takes on the value of one if manager  $m$  trades stock  $i$  in week  $t$  and zero otherwise. With short-sale constraints, the search costs may be larger for buy decisions, because for sell decisions the choice set is reduced to stocks that are currently held (Barber and Odean, 2008). It is not clear, however, whether the institutional investors in our sample are short-sale constrained.<sup>15</sup> Hence, we define dummy variables that separately flag buy and sell decisions.

Second, there may be an *intensive margin* effect due to inattention. Indeed, such an effect is a primitive prediction of models of rational attention choice (e.g., Verrecchia (1982); He and Wang, 1995; Vives, 1995; Van Nieuwerburgh and Veldkamp, 2010). The intuition is that investors trade less aggressively when they possess less precise information—such as when they are distracted. According to this line of work, we expect to see a reduction in *trading volume* $_{imt}$ , defined as the logarithm of dollar trading volume, conditional on manager  $m$  trading stock  $i$  in week  $t$ .

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<sup>15</sup> According to Jame (2014), the ANcerno data contains short-sales, but it is not possible to distinguish them from other sales.



The effect of inattention on manager's overall profitability is less obvious. For example, suppose that all trades are equally profitable and that distraction leads investors to make fewer trades. In this case, whether inattention hurts or benefits performance depends on the average profitability *per* trade. Here the evidence is mixed: while Puckett and Yan (2011) find that ANcerno clients posit interim trading skills, Chakrabarty et al. (2014) come to the opposite conclusion. Moreover, not all trades are equally profitable and hence the impact of investor distraction may ultimately depends on which type of trades are foregone. Two opposing effects are conceivable: on the one hand, managers could have in mind a clear order of trades. We then expect attention-constrained managers to cut back on the least profitable ones, which will boost their average trade profitability. On the other hand, identifying more profitable trades may itself require more attention. Under this scenario, distraction should reduce average trade profitability. In conclusion, how distraction affects trade performance is an empirical question—one that we intend to answer by studying how our distraction measure correlates with average trade returns over varying horizons.

Another channel through which distraction may affect performance is the non-traded part of managers' portfolios. It is conceivable that distracted managers fail to observe signals that will hint at the right point in time to close an existing position. In this case, we expect the manager's non-traded part of the portfolio to underperform after he was distracted. Compared to the direct performance impact on trades, this channel is indirect in that it constitutes an *act of omission*; i.e., the failure to close an existing position at the right moment.

Finally, conditional on having decided to trade in a certain stock, distraction may affect order execution quality (and thus transaction costs). Anand et al. (2012) find that execution quality is an economically important contributor to relative performance. For instance, one may

hypothesize that limit orders yield better prices but require more attention (because limit orders give rise to the risk of being picked off and/or not being executed).<sup>16</sup> Attention-constrained managers may hence decide to use market orders instead of limit orders. In addition, distracted managers may spend less time looking for the best quotes and/or bargaining with brokers, which should lead to a further increase in transaction costs. These effects could be at work even when managers rely on brokers for executing their trading orders, because distracted institutions may send their orders with delay and thus higher urgency.

We proxy for execution quality with the average *daily transaction spread*, defined as the difference between the execution price and the closing midquote on the day of a buy transaction (and vice versa for sells). Using this proxy, we investigate whether distraction indeed increases incurred transaction costs as predicted.

### **III. Distraction and Trading**

#### *A. Baseline Results*

In this section, we examine how distraction affects trading activity. Table 2 shows the results for the propensity to trade (trade dummy)—first for all trades (columns 1-2) and then for buys and sells separately (columns 3-6). Panels A and B reveal a pervasive distraction effect for both the ANcerno and the 13f watchlist. Based on the exact specification, we find that a one standard deviation increase in our distraction measure reduces the probability to trade

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<sup>16</sup> Dugast (2014) presents a model of limit order trading under with infrequent monitoring due to limited attention. Moreover, we believe that such an intuition can arise naturally in models of endogenous limit order trading as in Handa and Schwartz (1996) and Goettler et al. (2005, 2009).

by 2.2% to 3.3% relative to its unconditional mean. While the effect may not appear very large, it is important to emphasize that this is the average effect across all types of managers, including those that follow passive investment strategies and which are therefore unlikely to be affected by distraction. Thus, the effect is economically meaningful. Converted into numbers of trades, it implies that the average manager foregoes 9 trades in a week per one-standard deviation increase in distraction.

Analyzing the trading behavior of retail investors, Peress and Schmidt (2014) find a significant distraction effect for buys but not for sells. In contrast, we find a symmetric effect for the buy and sell decisions of institutional investors (columns 3-6). This difference likely stems from short-selling: contrary to retail investors, institutional investors have much larger portfolios and routinely go short. Hence, conditional on having decided to sell, a retail investor can only choose among the handful of portfolio stocks, whereas an institutional investor faces a much larger choice set. Since a complex choice is more susceptible to distraction, this explains why there is a significant distraction effect for institutional sells but not for retail ones.

In Table 3, we study the impact of distraction on the intensive margin of trade; i.e., the decision of how much to buy or sell conditional on trading. As argued above, rational attention models à la Van Nieuwerburgh and Veldkamp (2010) make a clear prediction: paying less attention implies having less precise information, leading investors to trade less aggressively. In contrast, we find no evidence that distracted managers curb their trading amounts (conditional on trading). Based on the estimated standard error, we can reject any intensive margin effect that exceeds 2.4% of the average dollar volume per standard deviation increase in distraction. Hence, even if such an effect exists, its economic magnitude

would be small. The failure to support this basic prediction of rational attention models is noteworthy since, if these models are to explain any investor behavior, we expect them to explain best the behavior of professional money managers.

Our results suggest that it is the decision of which stocks to trade that requires the most attention—and which is thus most affected by distraction. Hence, they are most consistent with models that feature a *fixed search cost* for deciding which stock to trade (akin to Merton, 1987).

### *B. Quasi-Indexers*

If our results are due to investor distraction as we posit, we expect them to be concentrated for certain type of managers. For example, some managers may openly or covertly mimic an index. Since such passive investment strategies require little attention, there is no scope for distraction. We use the investor classification by Bushee and Noe (2000) and Bushee (2001) to sort managers into “quasi-indexers” and others and repeat our regression analysis for these two groups.<sup>17</sup> Table 4 shows the results. We see that the distraction effect is highly concentrated in the group of non-indexers: the effect for quasi-indexers is either very small (for the ANcerno watchlist, column 1) or non-existent (for the 13f watchlist, column 3). In contrast, the effect for the non-indexers is double the magnitude of the baseline effect documented in Table 2, with a one standard deviation increase in distraction leading to a 4.5%-7.2% reduction in the propensity to trade. As shown at the bottom of the table, the differences between the two subgroups are also statistically significant for both the ANcerno and the 13f sample.

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<sup>17</sup> Because we are only able to classify a manager when we can link him to 13f data, we don't lose additional observations by including the 13f controls (level and change in assets under management). Hence, we only show results that include these controls.

### C. *Additional Sample Splits*

In this subsection, we provide additional sample splits to examine which type of managers are more distracted. Each row in Table 5 represents one sample split, including a test statistic for the difference (columns 4 and 8). For brevity, we only show the coefficient on the distraction measure, although we always run the full specification with all controls.

Our first two sample splits are meant to reinforce the point that active management requires more attention and thus suffers more from inattention. First, we classify managers into terciles based on their average watchlist *turnover* (defined as dollar trading volume over the total market capitalization of the watchlist portfolio). Managers that only trade to invest/divest as a function of fund inflows/outflows are likely to score low on this measure and hence we expect them to be less distracted. Row 1 in Table 5 confirms this expectation: distraction is strongest for the managers with high turnover, whereas low-turnover managers do not appear to be distracted at all. These differences are statistically significant.

Second, we attempt to separate between rebalancing and flow-induced trades. The idea is that rebalancing trades involve stock selection and are thus prone to distraction. Instead, flow-induced trades lead to a mechanic rescaling of existing positions. To capture the degree of flow induced vs. rebalancing trades, we calculate, for each week, the minimum of a manager's dollar buys and dollar sells, divided by his total trading volume.<sup>18</sup> We then take the average across weeks and call this measure *trade activeness*. Managers that score high on this measure buy and sell a lot at the same time, thereby rebalancing their portfolios from one stock to another. Managers that score low on this measure either buy or sell in a given week,

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<sup>18</sup> This measure is similar in spirit to the portfolio turnover proxy used in Wermers (2000) and Brunnermeier and Nagel (2004), except that we scale by total trading volume rather than portfolio holdings.

presumably because they are responding to in- and outflows to and from their funds. We then run our analysis separately for managers in the bottom, middle and top tercile in terms of this trade activeness measure. Row 2 shows that, as expected, we find the strongest distraction effect for managers with high trade activeness; i.e., those managers that make active rebalancing decisions on a regular basis. For the top group, a one standard deviation increase in distraction is associated with a 4.7%-7.3% reduction in the propensity to trade, whereas there is no discernible distraction effect for the bottom group. These differences are again statistically significant.

Our third sample split is meant to disentangle between the distraction effect and the information effect of earnings news. The idea is that for stocks in the same industry as the announcing stock, the announcement provides information and may thus attract rather than distract investors' attention (e.g., Patton and Verardo, 2012). Such a confounding effect should be particularly strong for managers with concentrated industry portfolios and hence we expect to find a weaker distraction effect for this group. We therefore sort managers into terciles based on the average Herfindahl index of their portfolio holdings across the Fama-French 49 industries. Row 3 shows that, consistent with our expectation, the distraction effect is largest for the group of managers with low industry concentration (although the difference is only significant for the ANcerno watchlist).

Forth, we split managers by average assets under management over the sample period.<sup>19</sup> Row 4 in Table 5 shows that managers of all size appear to be distracted (except for large

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<sup>19</sup> For this sample split, we do not classify managers into equal terciles, because this results in model overfitting for the tercile of managers with low assets under management. This is because small managers' watchlists do not overlap enough, which means that our full model with the inclusion of stock×week and manager×stock fixed effects is poorly identified. Instead, to balance the number of observations in the different size groups, we

managers with the 13F watchlist, where the effect is insignificant). Perhaps surprisingly, the economic magnitude of the distraction effect seems to be larger for big institutions, although the difference is marginally significant at best. It turns out that these magnitudess are misleading, however, as the underlying propensity to trade is much higher for large institutions. When scaled appropriately, the economic magnitude of the distraction effect appears comparable across size groups (a one standard deviation increase in distraction reduces the propensity to trade by 3-4% and 4-5% for small and large managers, respectively). It may seem surprising that large institutions are at least as distracted as small ones. After all, large institutions presumably comprise more different funds, which should attenuate our distraction effect through measurement error. Other factors may work against this attenuation, however. First, larger institutions are typically less focused (e.g., have a lower industry concentration), which means that the distraction effect will be less confounded by the information effect of earnings news (see above). Second, even when an institution has many funds, some trading decisions may yet be taken at or depend on input from the institutional level (for example, because trades are executed by a single trading division, because the same research division gives recommendations for all funds within the institution, or because trades are authorized by a group-wide risk management division).

The argument that less focused institutions are more prone to distraction also explains the results for our fifth sample split, where we find a stronger distraction effect for managers with a large number of watchlist stocks (Table 5 row 5). Sixth, we sort managers by average trading profits, measured as the mean (watchlist-weighted) return of the watchlist portfolio over a 48 weeks horizon. There is a tendency for managers with low or medium profits to be

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classify the 60% smallest institutions as low assets under management, the 20% largest institutions as high assets under management, and all others as medium assets under management.

more distracted than those with high profits, but these differences are not significant. This evidence is consistent with skilled managers relying less on (public) earnings news, presumably because they are able to uncover valuable private information (Kacperczyk and Seru, 2007).

Finally, we check whether distraction is stronger or weaker for the 75 hedge funds in our sample.<sup>20</sup> We have no particular prior for this exercise: On the one hand, hedge funds are more likely to follow active investment strategies, which should make them prone to distraction. On the other hand, hedge funds are more focused and are more likely to employ trading algorithms, which should limit their capacity to be distracted. Our results, shown in Table 5 row 7, appear more consistent with the second interpretation, as the distraction effect for hedge funds is not statistically significant. We acknowledge, however, that the insignificance could also arise from low statistical power, as the economic magnitude of the distraction effect is not much smaller than for the other institutions (explaining also why the difference is not significant).

Taken together, the results from this section support the notion that news events absorb attention that is missing for trading in other stocks, especially for managers that follow active investment strategies across different industries.

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<sup>20</sup> We thank Russell Jame for providing the hedge fund identifiers (described in Jame, 2014).



## IV. Trade Profitability

Our profitability analysis proceeds in three parts. First, we document the average trade profitability of the institutional investors in our sample in order to see whether managers' foregone trades benefit or hurt their performance. Second, we decompose managers' watchlist portfolios into a buys-, sells- and no-trade portfolio and separately examine how the performance of these portfolios varies with distraction. Third, returning to the manager-stock-week level, we ask whether distracted managers incur higher transaction costs compared to non-distracted managers *trading in the same stock*.

### A. Overall Trade Profitability

We start with an examination of the average trade profitability of the ANcerno managers in our samples. To be consistent with our previous analyses, we focus on managers' trades in watchlist stocks only. The previous literature disagrees on whether ANcerno managers have trading skills: while Puckett and Yan (2011) answer in the affirmative, Charkrabarty et al. (2014) conclude the opposite. Jame (2014) finds a positive trade performance over a one-month horizon for the subsample of hedge funds in ANcerno, but also notes that this performance evaporates over the subsequent months. We add to this mixed evidence by showing that ANcerno managers have meagre holding period returns—returns that barely beat the market once transaction costs are properly accounted for.

Specifically, Table 6 shows the (volume-weighted) average cumulated return for different portfolios.<sup>21</sup> The “watchlist portfolio” (column 1) is the portfolio of watchlists stocks (weighted by watchlist weight). The “buys portfolio” (“sells portfolio”) is the portfolio of

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<sup>21</sup> Portfolio returns are winsorized at the 1% level (results without winsorizing are not much different).

watchlists stocks that the manager (re-)buys (sells) in a given week. The “no-trade” portfolio is the portfolio of watchlist stocks that is not traded in a given week (weighted by watchlist weight). Together, the buys, sells, and no-trade portfolios make up the watchlist portfolio. Panel A, column 1 shows for example that the ANcerno watchlist portfolio returns 5.26% over the next 48 weeks (~1 year) on average. This is not much more than the market, which returned an annual average of 4.48% during our sample period. Taking into account that these figures do not include transaction costs and management fees (paid by the asset managers’ clients), our results echo the literature in that ANcerno managers achieve unimpressive returns. One feature which stands out, however, is that the non-traded part of the watchlist portfolio (“no-trade portfolio”) underperforms the other portfolios. This suggests that it may be the failure to trade and close certain positions which may have an important effect on overall performance. We now test for this possibility more formally.

### *B. Portfolio Decomposition*

As argued above, a manager’s watchlist can be decomposed in three sub-portfolios: stocks that the manager buys more of (“buys portfolio”), stocks that the manager sells (“sells portfolio”), and stocks that the manager doesn’t trade (“no-trade portfolio”). In this subsection, we test whether the performance of each of these sub-portfolios is related to distraction. Specifically, we run regressions of the following type:

$$PF\ return_{mt}^{[t+1,t+T]} = \alpha_t + \alpha_m + \beta\ distraction_{mt} + \delta\ managercontrols_{mt} + \varepsilon_{mt} \quad (2)$$

Here,  $PF\ return_{mt}^{[t+1,t+T]}$  is the future return of one of the sub-portfolios for a certain holding period,  $distraction_{mt}$  is the fraction of watchlist stocks that have an earnings announcement in week  $t$  and  $managercontrols_{mt}$  include the manager’s watchlist size and past trading

volume. To ensure that there is no mechanical link between portfolio returns on the left-hand-side and distraction on the right-hand-side, earnings announcement stocks are excluded before calculating portfolio returns. Manager and week fixed effects are included to soak up all time-invariant variation (controlling for, e.g., return seasonalities coinciding with the earnings season) and manager-invariant variation (controlling for, e.g., manager-specific risk appetites).

Table 7 shows the regression results for different holding periods and for both the ANcerno and 13f watchlists. It emerges that distraction has a strong and significant effect on the no-trade portfolio, but little effect on the buys and sells portfolios. For example, with the ANcerno watchlist (Panel A), a one standard deviation increase of distraction reduces the return of the no-trade portfolio over the following 48 weeks by 0.5 percentage points, corresponding to 13% of the unconditional no-trade return over the same horizon. This underperformance of the no-trade portfolio builds up gradually over time, suggesting that these losses could have been avoided when the manager had caught up on his foregone trades after a distracting event. The flip side of the underperformance for non-traded stocks can be seen for the sells portfolio: at least until a horizon of 8 weeks (though not beyond), stocks sold by non-distracted managers perform worse than those sold by distracted ones, meaning that non-distracted managers were right selling them.

One concern with the evidence shown in Table 7 is that managers vary their risk exposure over time, and that these changes co-vary with our distraction measure, thus perhaps explaining why we find a significant correlation for the no-trade portfolio. To mitigate this concern, we replace the portfolio return on the left-hand-side of the regression analysis in (2) by average cumulated Fama-French 3-factor alphas for each portfolio. Specifically, for each

stock-week observation, we estimate factor loadings by regressing excess returns in the previous 52 weeks on weekly factor returns downloaded from Kenneth French's website.<sup>22</sup> We use these factor loadings to compute alphas over the next 48 weeks. Alphas are cumulated over varying holding periods and then averaged for the respective portfolio (value-weighted by watchlist weights). Table 8 shows the results. The overall pattern is unchanged (though the significance is weaker): the no-trade portfolio of distracted managers underperforms the one for non-distracted ones. There is again some evidence of an outperformance of the sell portfolio (until week 8), and no return difference for the buy portfolio.

To sum up, the evidence presented here suggests that distraction hurts performance through a failure to act, rather than from the trades directly. Specifically, distracted managers neglect to close existing positions that underperform subsequently.

### *C. Transaction Costs*

We now examine whether differences in distraction affect the order execution quality for managers trading in the *same* stock. In other words, we return to specification (1), which includes stock×date and stock×manager fixed effects. While the stock return is obviously the same for all managers, it may still be the case that trade execution prices vary across managers within a stock. Thus, we are essentially testing whether distracted managers trade at worse prices compared to non- distracted ones.

Our proxy for order execution quality is the difference in average transaction spread. Specifically, for each buy, we calculate the difference between the execution price and the day's closing midquote (and vice versa for sells). We then average (weighted by trading

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<sup>22</sup> Weekly factor returns for the market, SMB and HML can be found at: [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html). [The momentum factor is unfortunately not available at weekly frequency; we are trying to find a workaround here.]

volume) the incurred spreads for buys and sells for each manager-stock-week. We also calculate the total transaction spreads as the (weighted) sum of spreads for buys and sells. Transaction spreads are missing when a manager does not trade the stock in a given week.

Using this measure as the dependent variable in Table 9, we find weak support for the notion that distraction hurts execution quality: for the ANcerno sample with full controls (column 6), the effect of distraction is significantly positive but economically small. A one standard deviation increase in distraction increases total transaction spreads by \$0.0052, representing less than 1% of its standard deviation. For the 13f watchlist, the point estimate is also positive but fails to be significant. Recall that, because of the inclusion of stock×date fixed effects, these results are not driven by, for example, market liquidity conditions. Instead, they are identified from comparing the average transaction costs incurred by different managers in the same stock at the same point in time.

Taken together, we find suggestive evidence for the prediction that distraction hurts performance: distracted managers neglect to close losing positions and appear to be trading at slightly worse prices.

## **V. Robustness**

In this section, we present some robustness checks for the effect of distraction on trading propensity. Table 10 contains the results. For brevity, we only show the coefficient on the distraction measure, although we always run the full specification with and without 13f controls.

In our first robustness check, shown in Table 10 row 1, we cluster standard errors at the week rather than at the manager level. It turns out that this only increases the t-statistics. Second, we calculate the distraction measure as before, except that we now exclude from the calculation not only the stock in question, but all stocks in the same Fama-French 49 industry. The idea is that earnings announcements may represent important economic news events for all stocks in the same industry, and hence distraction would be better defined by looking at earnings announcements among stocks in *other* industries. As shown in row 2, the results are not affected by this change. Third, we drop all stock-weeks in which the firm has an earnings announcement from the sample. Row 3 shows that the results are again very similar.

Fourth, we address the concern that our results could be driven by institutional capital or risk management constraints. When such constraints are binding, an institution's decision to trade upon the earnings announcement of a watchlist stock is certainly interlinked with its decision to trade in other stocks. We argue, however, that in its most straightforward interpretation, such an explanation will predict the opposite of what we find. For example, suppose an institution wants to buy a stock with a positive earnings surprise. If the institution is capital constrained, it may need to sell another position in order to finance this purchase. But then we would expect to find *more* and not less trading when there are many earnings announcements of watchlist stocks. Hence, a more subtle variant of this explanation is needed to explain our results. For instance, one may argue that institutions are reluctant to close existing positions but hold a certain cash balance (or face a limited risk-taking capacity) for entering new trades. Buying the announcing stock will then mean there is less money (or risk-taking capacity) for buying other stocks. To control for this possibility, we include the (logarithm of the) total amount traded in announcing stocks as a control variable (while again

excluding all stock-weeks with an earnings announcement). The idea is that, if our results are driven by capital constraints, then it should be the actual trades in announcing stocks that matter. In other words, if an institution does not trade on the earnings announcement (so that the capital constraint is unaffected), there is no reason to expect it to trade less in other stocks. Row 4 shows that our results are robust to the inclusion of this control: distraction continues to have a strong negative impact on the trading dummy, while the coefficient estimate of the control is significantly positive (not shown for brevity). In fact, both the statistical and economic significance of the measured distraction effect is largely increased. This could mean that the true distraction effect was indeed attenuated by the presence of capital/risk management constraints (as conjectured in the “straightforward” interpretation above). We nevertheless prefer the specification without this control, because the decision to trade in announcing stocks is certainly endogenous (and not predetermined as for the other controls).

In our final robustness check, we employ an alternative distraction measure that remedies one unappealing feature of the original definition. To see the issue, suppose a manager has three watchlist stocks: stock A with a weight of 0.4, stock B with a weight of 0.4, and stock C with a weight of 0.2. Suppose further that stock A has an earnings announcement. With the original definition, the distraction measure would be 0 for stock A,  $2/3$  for stock B and  $1/2$  for stock C. Thus, it would appear as if distraction is higher for stock B compared to stock C, although this difference is only due to the respective watchlist weight that is excluded. In other words, the within-manager variation in our original distraction measure is not likely to be very meaningful.

For this reason, we now calculate distraction as:

$$distraction_{imt} = \sum_{j \neq i} w_{jmt} \times EA\ dummy_{jt}$$

In the example above, this definition yields a distraction of 0 for stock A, and 0.4 for stocks B and C. Hence, distraction now appears similar for stocks B and C. We repeat our regression with this new measure, while again excluding earnings announcements from the sample. Importantly, with this analysis, distraction *only* varies across manager-weeks (while being the same for all stocks of the same manager). As shown in row 5 of Table 10, our results are qualitatively and quantitatively similar to those from before.

## VI. Conclusion

Exploring detailed transaction records, we investigate and quantify attention constraints among professional asset managers. This is an important task because these investors employ significant resources to overcome attention constraints: they hire research staff, acquire access to real-time news feeds and invest in computer capacities for algorithmic trading or smart order-routing. We find that, despite of these efforts, attention constraints occasionally appear to be binding. Specifically, we find that managers with a large fraction of watchlist stocks exhibiting an earnings announcement are significantly less likely to trade in other stocks compared to non-distracted managers, but—conditional on trading—do not trade in smaller amounts. These findings are consistent with models that feature a significant *fixed* search costs for deciding in which stocks to trade (akin to the recognition costs in Merton, 1987), but are inconsistent with models in which attention-constrained investors gather less precise information and curb their trading aggressiveness as a consequence (e.g., Verrecchia, 1982; Van Nieuwerburgh and Veldkamp, 2010).



Finally, we attempt to study the link between distraction and trade performance. Our tentative results indicate that distraction hurts performance for two reasons. First, distracted managers neglect to close losing positions and, second, they appear to be trading at slightly worse prices. In contrast, there is no evidence that distracted managers actively pick worse trades. Hence, distraction affects performance not through trades directly, but rather through the failure to trade.

To the best of our knowledge, this is the first paper to provide trade-level evidence of distraction effects among professional asset managers. However, one need not stop here: our approach could be used to construct stock-level distraction measures by aggregating across institutions holding a particular stock (as in Kempf et al., 2014, but at higher frequency). Such a measure holds the promise of shedding light on the financial market implications of limited attention among institutional investors—a question of paramount importance. We plan to contribute to this question in future work.

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## **Appendix A: Match between ANcerno and CRSP**

### *Matching procedure*

We match *stockkeys* from ANcerno to permnos from CRSP using 8-digit *cusip*-day pairs. We drop from our sample all stockkeys that have more than one cusip on any particular day.

Since the cusip field in ANcerno is missing for several trades, there are often “holes” in this match. We fill this holes in the following way: Whenever a permno shows up for a stockkey two times without any other permno being present in between, we assign this permno for all dates in between. We also assign the first permno to all prior days of this stockkey and last permno to all following dates.

### *Quality assessment*

On average we can match over 93% of stockkey-dates to permnos. In no month is the matching quota below 90%. As a comparison: Matching on stock symbols (*ticker*) only matches 63% of stockkey-dates. In those cases where we can match stockkey and permno using both ticker and cusip, they yield the same permno in 99.5% of the cases. In those cases where they yield different permnos, the match is better using our cusip method in 99% of the cases. We measure quality of the match as the difference in logs between the average trading price in ANcerno and the CRSP closing price. The match quality is also good in an absolute sense. In only 36 out of over 11 million stockkey-date pairs is the median trading price from ANcerno outside the low-high price range given by CRSP.

## **Appendix B: Match between ANcerno and 13f**

Using the manager names available to us, we hand-match between ANcerno managers (identified by *managercode*) to institutional investors in 13f (identified by *mgrno*). In doing so, we follow a conservative matching approach in order to minimize erroneous matches. We first use a string-proximity algorithm to generate a set of potential matches and then manually select the correct match from these potential matches. We are able to find mgrnos in 13f for 670 out of the 835 managers in our ANcerno sample.

Given the name-matching table, we link each managercode-quarter pair in ANcerno with mgrno-quarter pairs from 13f where available. For the managercode-quarter pairs that we can match, the match is with a unique mgrno in 92% of the cases. For the remaining 8%, there appear multiple mgrnos in 13f in that quarter with a name that matches to ANcerno. It appears that in those cases the different mgrnos represent different state branches of the same manager. We therefore aggregate the 13f holdings across those different mgrnos in those quarters. With this approach, we are able to find holding reports for 6,830 out of 19,686 managercode-quarter pairs in our ANcerno sample.

## Appendix C: Variable Definitions

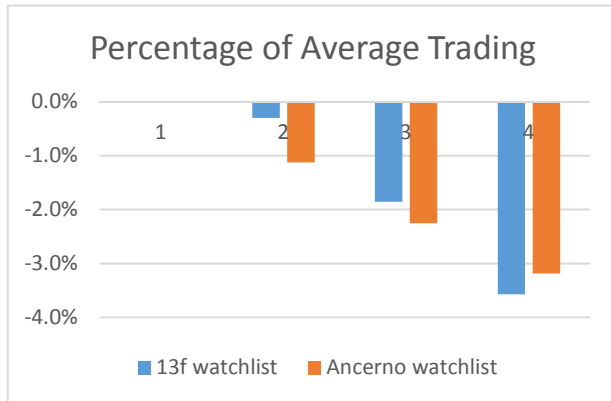
This table shows the definitions of the variables used in our study. All continuous variables are winsorized at the 1% threshold.

Variable Name	Definition	Level
Distraction (ANcerno)	Weighted fraction of a manager's watchlist stocks that have an earnings announcement, where the weights correspond to the fraction of the manager's trading volume in the stock over the past 12 weeks (ANcerno)	Manager-Stock-Week
Distraction (13f)	Weighted fraction of a manager's watchlist stocks that have an earnings announcement, where the weights correspond to the fraction of the manager's holdings in the stock at the end of the previous quarter (13f)	Manager-Stock-Week
Stocks on watchlist (ANcerno) (log)	Logarithm of number of stocks that the manager traded in the past 12 weeks. (ANcerno)	Manager-Week
Stocks on watchlist (13f) (log)	Logarithm of number of stocks that the manager held at the beginning of the quarter (ANcerno)	Manager-Week
Trade volume manager (t-12,t-1) (log)	Logarithm of the dollar trading volume of the manager in the preceding 12 weeks (Ancerno)	Manager-Week
Trade number (t-12,t-1)	How many days in the last 12 weeks the manager traded the stock	Manager-Week-Stock
Assets under Management (log)	Logarithm of the dollar amount of assets under management at the end of the previous quarter (13f)	Manager-Week
Change in AuM	Relative change in assets under management from beginning to the end of the previous quarter (13f)	Manager-Week
Trade (dummy)	Dummy variable equal to 1 if the manager traded the stock in that week	Manager-Week-Stock
Buy (dummy)	Dummy variable equal to 1 if the manager bought the stock in that week	Manager-Week-Stock
Sell (dummy)	Dummy variable equal to 1 if the manager sold the stock in that week	Manager-Week-Stock
Trading Volume (log)	Logarithm of the dollar trading volume of the manager in the stock in that week	Manager-Week-Stock
Transaction Costs	The volume-weighted average transaction spread, which is defined as the difference between the execution price and the day's closing misquote for buys (and vice versa for sells) (ANcerno & CRSP)	Manager-Week-Stock
Watchlist portfolio return	Return of a portfolio consisting of all watchlist stocks (weighted by either trading volume or portfolio holdings) (ANcerno & CRSP)	Manager-Week
Buys portfolio return	Return of a portfolio consisting of all watchlist stocks (re)bought in a given week (weighted by either trading volume or portfolio holdings) (ANcerno & CRSP)	Manager-Week
Sells portfolio return	Return of a portfolio consisting of all watchlist stocks sold in a given week (weighted by either trading volume or portfolio holdings) (ANcerno & CRSP)	Manager-Week
No-trade portfolio return	Return of a portfolio consisting of all watchlist stocks sold in a given week (weighted by either trading volume or portfolio holdings) (ANcerno & CRSP)	Manager-Week

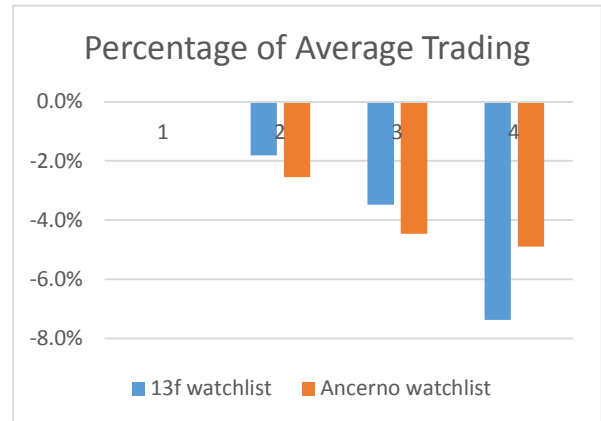
## Figure 1: Distraction and Trading Propensity

This figure shows the economic magnitude of the distraction effect for different distraction quartiles. The economic magnitude is measured as the reduction in the propensity to trade, relative to its unconditional mean. The numbers come from regressions similar to the ones in Table 2, except that the continuous distraction measure is replaced by quartile dummies. The numbers for quartiles 2 to 4 show the additional distraction relative to quartile 1 (least distraction). Panel A shows the quartile results for the overall sample that includes all managers. Panel B shows the quartile results for the subset of managers that are classified as non-indexers according to Bushee and Noe (2000) and Bushee (2001). The orange and blue bars show results for the ANcerno trade-based and 13f holdings-based watchlists, respectively.

*Panel A: All managers*



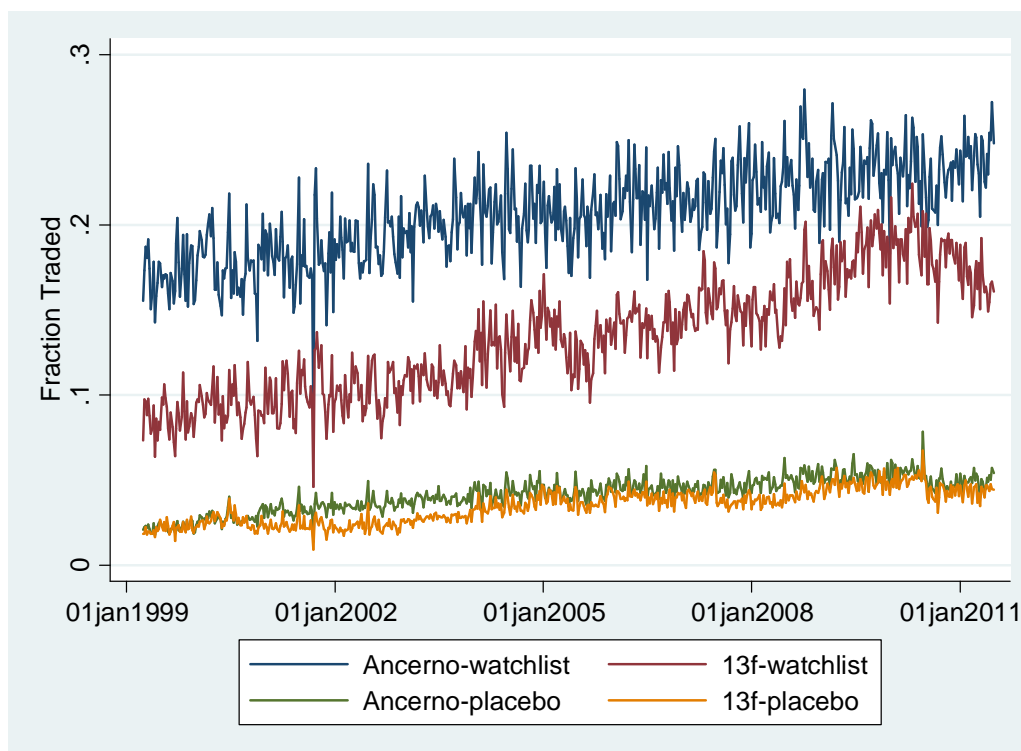
*Panel B: Non-indexers only*





## Figure 2: Trade persistence for ANcerno and 13f watchlists

This figure shows time-series plots of the fraction of stocks on different watchlists that are traded over the following week. The blue line is for the ANcerno-based watchlist. The red line is for the 13f-based watchlist. The green line is for a placebo (i.e., randomly assembled) watchlist based on ANcerno trade data. The yellow line is for a placebo watchlist based on reshuffled 13f holdings data.



## Table 1: Summary Statistics

This table describes the data used in our study. In Panel A, we show summary statistics for all variables used in our panel regressions. The “ANcerno sample – full” contains all stock-manager-week combinations that are part of the ANcerno-based watchlist. The “ANcerno sample – 13f match” contains the subsample of “ANcerno sample – full” for which we could match 13f holdings data at the end of the previous quarter. The “13f based sample” contains all stock-manager-week combinations that are part of the 13f-based watchlist. *Distraction (ANcerno)* is defined as the weighted fraction (in %) of a manager’s watchlist stocks that have an earnings announcement, where the weights correspond to the fraction of trading volume in the particular stock over the past 12 weeks. *Distraction (13f)* is defined as the weighted fraction (in %) of a manager’s watchlist stocks that have an earnings announcement, where the weights correspond to the fraction of portfolio holdings in the particular stock at the end of the previous quarter. *Stocks on watchlist (ANcerno)* is the number of stocks on the manager’s ANcerno watchlist. *Stocks on watchlist (13f)* is the number of stocks on the manager’s 13f watchlist. *Trade volume* is the weekly trading volume in the stock (if it is positive) in million \$. *Trade number* is the number of days on which the stock was traded in the last 12 weeks. *Trade volume manager* is the total trading volume of the manager in the past 12 weeks (in m\$). *Trade (dummy)* is a dummy variable equal to one if the manager trades the stock in that week. *Buy (dummy)* is a dummy variable equal to one if the manager bought the stock at least once in the week. *Sell (dummy)* is a dummy variable equal to one if the manager sold the stock at least once in the week. *Transaction costs* are defined as the average daily realized transaction spread, where the spread is the difference between the transaction price and the midquote price for buys (and vice versa for sells). *Assets under Management* is the amount of assets under management according to 13f (in b\$). *Change in AuM* is the percentage change in assets under management of the manager within the preceding quarter. In Panel B, we report results of a trade persistence analysis at the manager-week level. For each watchlist (ANcerno and 13f), it shows the mean number of stocks on the watchlist, the mean number of those stocks that are traded in the next week, and the fraction of the two. This fraction is compared to a similar fraction of traded stocks for a Placebo watchlist; i.e., a randomly-assembled watchlist. The last column reports the t-statistic of a difference-in-mean test clustered at the manager-level. \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% level, respectively.

*Panel A: Summary statistics for all variables*

	ANcerno sample - full			ANcerno sample - 13f match			13f based sample		
	Median	Mean	StD	Median	Mean	StD	Median	Mean	StD
Distraction (ANcerno)	3.1	7.9	10.3	3.1	7.8	10.3			
Distraction (13f)							3.1	8.1	10.8
Trade volume (m\$) (if pos.)	0.12	1.87	11.04	0.15	2.03	12.11	0.16	2.16	12.80
Trade number (t-12,t-1)	3	7.5	10.6	3	8.3	12.3	0	3.1	9.0
Trade volume manager (t-12,t-1) (b\$)	1.3	10.7	24.7	1.3	12.7	26.3	0.2	6.1	19.0
Trade (dummy)	0.00	0.28	0.45	0.00	0.29	0.46	0.00	0.11	0.32
Buy (dummy)	0.00	0.18	0.38	0.00	0.20	0.40	0.00	0.08	0.27
Sell (dummy)	0.00	0.18	0.38	0.00	0.18	0.38	0.00	0.07	0.25
Transaction costs for buys (\$)	-0.01	0.00	19.41	0.00	0.00	7.57	0.00	0.00	1.30
Transaction costs for sells (\$)	0.03	0.00	10.91	0.02	0.00	6.68	0.01	0.00	1.42
Assets under Management (b\$)				10.1	90.2	149.0	19.1	99.5	154.6
Change in AuM (%)				2.8	2.2	14.2	2.6	2.5	13.8
Number of Observations	57,382,705			17,900,548			40,436,769		

*Panel B: Trade persistence for ANcerno and 13f watchlists*

	Mean # stocks on watchlist	Mean # traded stocks on watchlist	Fraction traded (in %)	Placebo: Fraction traded (in %)	t-statistic of difference
ANcerno watchlist	275.75	82.36	20.43	4.16	(39.93)***
13f watchlist	486.83	64.58	13.30	3.45	(11.87)***

**Table 2: Distraction and Trading Volume – Extensive Margin**

This table shows results of stock-manager-week level regressions of managers' trading propensity on the distraction measure (specification (1) in the text). Distraction is defined as the fraction of a manager's watchlist stocks that have an earnings announcement. In columns 1-2, trading propensity is measured by a dummy that takes the value one if the manager trades a given stock in a given week and zero otherwise. Columns 3-4 and 5-6 separate between the buy and sell propensity, respectively. In Panel A, we conduct the analysis for the ANcerno watchlist and in Panel B for the 13f watchlist. All variables are defined in Appendix C. Standard errors are clustered at the manager level. *t*-statistics are below the parameter estimates in parenthesis; \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% level, respectively.

*Panel A: ANcerno watchlist*

Dependent Variable:	Trade (dummy)		Buy (dummy)		Sell (dummy)	
	(1)	(2)	(3)	(4)	(5)	(6)
Distraction (ANcerno)	-0.0611*** (-4.57)	-0.0837*** (-4.34)	-0.0473*** (-4.26)	-0.0486*** (-3.78)	-0.0319*** (-3.24)	-0.0660*** (-3.38)
Stocks on watchlist (ANcerno) (log)	0.0175*** (4.46)	0.0089 (1.37)	0.0111*** (3.47)	0.0031 (0.64)	0.0136*** (4.33)	0.0015 (0.21)
Trade volume manager (t-12,t-1) (log)	0.0167*** (6.82)	0.0191*** (4.99)	0.0080*** (3.74)	0.0109*** (2.84)	0.0109*** (6.04)	0.0128*** (3.62)
Trade number (t-12,t-1)	0.0154*** (20.74)	0.0135*** (10.15)	0.0135*** (46.23)	0.0123*** (21.04)	0.0144*** (56.48)	0.0138*** (52.17)
Assets under Management (log)		0.0053 (1.32)		0.0073** (2.24)		0.0024 (0.64)
Change in AuM (%)		-0.0107 (-0.75)		0.0084 (0.75)		-0.0244** (-2.35)
Number of Observations	57,313,471	17,701,215	57,313,471	17,701,215	57,313,471	17,701,215
Adjusted-R <sup>2</sup>	0.32	0.37	0.32	0.41	0.29	0.31
Manager×Week & Stock×Week fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

*Panel B: 13f watchlist*

Dependent Variable:	Trade (dummy)		Buy (dummy)		Sell (dummy)	
	(1)	(2)	(3)	(4)	(5)	(6)
Distraction (13f)	-0.0354*** (-3.25)	-0.0353*** (-3.22)	-0.0207*** (-3.25)	-0.0203*** (-3.19)	-0.0227** (-2.32)	-0.0228** (-2.32)
Stocks on watchlist (13f) (log)	0.0085 (1.29)	0.0158 (1.57)	0.0044 (1.28)	0.0061 (1.20)	-0.0002 (-0.05)	-0.0032 (-0.42)
Trade volume manager (t-12,t-1) (log)	0.0117*** (4.42)	0.0119*** (4.39)	0.0049*** (3.79)	0.0049*** (3.78)	0.0055*** (4.13)	0.0054*** (4.18)
Trade number (t-12,t-1)	0.0158*** (8.68)	0.0159*** (8.92)	0.0140*** (25.00)	0.0140*** (25.56)	0.0147*** (49.88)	0.0147*** (46.76)
Assets under Management (log)		-0.0087 (-1.37)		-0.0022 (-0.61)		0.0037 (0.64)
Change in AuM (%)		-0.0040 (-0.63)		0.0055 (1.52)		-0.0058 (-1.26)
Number of Observations	39,413,266	39,241,617	39,413,266	39,241,617	39,413,266	39,241,617
Adjusted-R <sup>2</sup>	0.48	0.48	0.49	0.49	0.38	0.38
Manager×Week & Stock×Week fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

**Table 3: Distraction and Trading Volume – Intensive Margin**

This table shows results of stock-manager-week level regressions of managers' trading intensity on the distraction measure (specification (1) in the text). Distraction is defined as the fraction of a manager's watchlist stocks that have an earnings announcement. Trading intensity is measured by the logarithm of the dollar trading volume (buys plus sells) by the manager in a given stock and week. The measure is set to missing if the manager does not trade in the stock in a given week. All variables are defined in Appendix C. Standard errors are clustered at the manager level. *t*-statistics are below the parameter estimates in parenthesis; \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable:	Trading Volume (log)			
	(1)	(2)	(3)	(4)
Distraction (ANcerno)	-0.0580 (-0.51)	-0.1244 (-0.50)		
Distraction (13f)			-0.0624 (-0.23)	-0.0649 (-0.23)
Stocks on watchlist (ANcerno) (log)	-0.5810*** (-12.63)	-0.4582*** (-6.72)		
Stocks on watchlist (13f) (log)			-0.1100 (-1.06)	-0.2050 (-1.24)
Trade volume manager (t-12,t-1) (log)	0.3940*** (15.90)	0.3614*** (8.66)	0.1749*** (4.83)	0.1745*** (4.78)
Trade number (t-12,t-1)	0.0312*** (9.40)	0.0262*** (11.08)	0.0253*** (9.97)	0.0247*** (9.65)
Assets under Management (log)		-0.0112 (-0.19)		0.1524 (1.15)
Change in AuM (%)		0.1428 (0.97)		0.0565 (0.36)
Number of Observations	16,293,088	5,249,252	4,609,571	4,595,689
Adjusted-R <sup>2</sup>	0.46	0.46	0.46	0.46
Manager×Week & Stock×Week fixed effects	Yes	Yes	Yes	Yes

**Table 4: Excluding Quasi-Indexers**

This table shows sample splits by whether a manager is a quasi-indexer or not. We run stock-manager-week level regressions of managers trading activity on the distraction measure (specification (1) in the text). Distraction is defined as the fraction of a manager's watchlist stocks that have an earnings announcement. In columns 1-2, we conduct the analysis for the ANcerno watchlist and in columns 3-4 for the 13f watchlist. In columns 1 and 3, we include only managers that are identified as quasi-indexers according to the classification by Bushee and Noe (2000) and Bushee (2001), while we exclude those managers in columns 2 and 4. The statistical significance of the difference between the two subgroups is reported at the bottom of the table. This significance is based on a regression model where all explanatory variables and fixed effects are interacted with a dummy equal to one if the manager is a quasi-indexer. All variables are defined in Appendix C. Standard errors are clustered at the manager level. *t*-statistics are below the parameter estimates in parenthesis; \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable:	Trade (dummy)			
Sample:	ANcerno Sample		13f Sample	
Subsample:	Quasi-indexer	Other	Quasi-indexer	Other
	(1)	(2)	(3)	(4)
Distraction (ANcerno)	-0.0470** (-2.23)	-0.1272*** (-4.36)		
Distraction (13f)			-0.0033 (-0.32)	-0.0737*** (-2.97)
Stocks on watchlist (ANcerno) (log)	0.0085 (1.10)	0.0202** (1.98)		
Stocks on watchlist (13f) (log)			0.0231 (1.63)	0.0069 (0.90)
Trade volume manager (t-12,t-1) (log)	0.0171*** (3.12)	0.0132** (2.36)	0.0109*** (3.56)	0.0138*** (4.40)
Trade number (t-12,t-1)	0.0115*** (8.30)	0.0159*** (21.90)	0.0141*** (8.30)	0.0174*** (12.29)
Assets under Management (log)	0.0097** (2.18)	-0.0031 (-0.65)	-0.0097 (-1.42)	-0.0020 (-0.29)
Change in AuM (%)	-0.0393 (-1.58)	-0.0032 (-0.17)	-0.0052 (-0.63)	0.0028 (0.31)
Number of Observations	8,028,495	6,715,463	21,990,021	11,254,609
Adjusted-R <sup>2</sup>	0.48	0.25	0.56	0.36
Difference in Distraction (t-stat)		2.23**		2.69***
Manager×Week & Stock×Week fixed effects	Yes	Yes	Yes	Yes

**Table 5: Additional Sample Splits**

This table shows results for additional sample splits for the stock-manager-week level regressions of managers trading propensity on the distraction measure (specification (1) in the text). Each row represents a different sample split as indicated in the row header (and explained in section III.C). The specification is the same as the one from Table 2. For brevity, the table only shows the coefficient on the distraction measure. Columns 1-3 and 5-7 show results for the ANcerno and 13F watchlists, respectively. Columns 4 and 8 show the test statistics of the difference between the high/yes and low/no groups. These significance tests are based on a regression model where all explanatory variables and fixed effects are interacted with a dummy equal to one if an observation is in the high/yes group and zero if it is in the low/no group. The split variables are defined as follows: 1) turnover is the average dollar trading volume in watchlist stocks over their market capitalization. 2) trade activeness is defined as the minimum of a manager's dollar buys and dollar sells, divided by his total trading volume. 3) Industry concentration is defined as the Herfindahl concentration index of a manager's reported stock holdings across Fama-French 49 industries. 4) Institution AuM is the institution's average assets under management. 5) Watchlist size is the average number of stocks on the institution's watchlist. 6) Average profits is the average 48-weeks ahead portfolio return of the watchlist portfolio. 7) Hedge fund is a dummy variable equal to one for hedge funds and zero otherwise (obtained from Russell Jame; explained in Jame, 2014). All variables are defined in Appendix C. Standard errors are clustered at the manager level. *t*-statistics are below the parameter estimates in parenthesis; \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable:	Trade (dummy)							
	ANcerno watchlist				13F watchlist			
	Low/No	Medium	High/Yes	t-stats Difference	Low/No	Medium	High/Yes	t-stats Difference
Sample Split by:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1) Turnover	-0.0085 (-0.37)	-0.0967*** (-3.10)	-0.1194*** (-3.26)	-2.60***	0.0025 (0.26)	-0.0395** (-2.60)	-0.0642** (-2.44)	-2.39**
2) Trade activeness	-0.0148 (-0.46)	-0.0453* (-1.77)	-0.1321*** (-4.02)	-2.93***	0.0112 (1.05)	-0.0048 (-0.50)	-0.0739*** (-3.42)	-3.54***
3) Industry concentr.	-0.1481*** (-3.44)	-0.0251 (-0.98)	-0.0446* (-1.72)	2.12**	-0.0418* (-1.76)	-0.0359*** (-2.62)	-0.0148 (-1.23)	1.04
4) Institution AuM	-0.0505*** (-3.08)	-0.1111*** (-3.06)	-0.1596** (-2.61)	-1.72*	-0.0186** (-2.34)	-0.0488** (-2.10)	-0.0639 (-1.45)	-1.02
5) Watchlist size	-0.0366 (-1.09)	-0.0374* (-1.70)	-0.1322*** (-4.07)	-2.47**	-0.0122 (-0.74)	-0.0130 (-1.08)	-0.0409** (-2.23)	-1.31
6) Average profits	-0.0489 (-1.36)	-0.1183*** (-4.04)	-0.0254 (-0.76)	0.48	-0.0509*** (-2.70)	-0.0204* (-1.76)	-0.0431* (-1.82)	0.26
7) Hedge fund	-0.0848*** (-3.82)	N/A	-0.0538 (-1.18)	-0.77	-0.0379*** (-3.07)	N/A	-0.0208 (-1.33)	0.98
Past Trade controls	Yes	Yes	Yes		Yes	Yes	Yes	
Mg×Wk & Stk×Wk fixed effects	Yes	Yes	Yes		Yes	Yes	Yes	
AuM & change in AuM	Yes	Yes	Yes		Yes	Yes	Yes	

**Table 6: Average Future Performance**

This table shows summary statistics for the average returns of managers' portfolios. Each column shows the sample mean return of a specific portfolio. The manager's "Watchlist Portfolio" (column 1) is the weighted average return of all watchlist stocks. The manager's "Buys Portfolio" (column 2) is the weighted average return of all watchlist stocks (re-)bought in a given week. The manager's "Sells Portfolio" (column 3) is the weighted average return of all watchlist stocks sold in a given week. The manager's "No-Trade Portfolio" (column 4) is the weighted average return of all watchlist stocks not traded in a given week. Stock-weeks with an earnings announcement are always excluded from the portfolios (because earnings announcements are used to calculate the right-hand-side distraction measure, see next table). In Panel A, we conduct the analysis for the ANcerno watchlist (where the weights correspond to the fraction of trading volume in the particular stock over the past 12 weeks) and in Panel B for the 13f watchlist (where the weights correspond to the fraction of portfolio holdings in the particular stock at the end of the previous quarter). Rows indicate the horizon over which portfolio returns are calculated. All numbers are given in %.

*Panel A: ANcerno watchlist*

Dependent Variable:	Average Cumulated Return			
Horizon:	Watchlist Portfolio (1)	Buys Portfolio (2)	Sells Portfolio (3)	No-Trade Portfolio (4)
1 week	0.1696	0.2582	0.1406	0.1158
2 weeks	0.3231	0.4405	0.2888	0.2192
4 weeks	0.5961	0.7514	0.5752	0.4023
8 weeks	1.0198	1.2677	1.1062	0.7103
12 weeks	1.4105	1.6757	1.5514	0.9889
18 weeks	1.9092	2.2059	2.1004	1.3395
24 weeks	2.5639	2.8671	2.7904	1.7993
36 weeks	3.9695	4.3350	4.2289	2.7785
48 weeks	5.2579	5.7434	5.5299	3.6363

*Panel B: 13f watchlist*

Dependent Variable:	Average Cumulated Return			
Horizon:	Watchlist Portfolio (1)	Buys Portfolio (2)	Sells Portfolio (3)	No-Trade Portfolio (4)
1 week	0.1846	0.2891	0.1327	0.1358
2 weeks	0.3437	0.4822	0.2733	0.2492
4 weeks	0.6461	0.8152	0.5432	0.4752
8 weeks	1.0639	1.2897	1.0797	0.7985
12 weeks	1.4825	1.6639	1.5007	1.1078
18 weeks	2.0080	2.2018	2.1226	1.4798
24 weeks	2.6539	2.9292	2.8963	1.9592
36 weeks	4.0339	4.4103	4.4783	2.9673
48 weeks	5.3268	5.7346	5.8458	3.8994

**Table 7: Future Performance and Distraction – Raw Returns**

This table shows results of manager-week level regressions of portfolio returns on the distraction measure (aggregated at the manager-level, see specification (2) in the text). Each row represents the regression results for the distraction coefficient for a different horizon of the portfolio return. Control variables are included but not reported for brevity. Distraction is defined as the fraction of a manager’s watchlist stocks that have an earnings announcement. The manager’s “Buys Portfolio” (columns 1-2) is the weighted average return of all watchlist stocks (re-)bought in a given week. The manager’s “Sells Portfolio” (column 3-4) is the weighted average return of all watchlist stocks sold in a given week. The manager’s “No-Trade Portfolio” (column 5-6) is the weighted average return of all watchlist stocks not traded in a given week. Stock-weeks with an earnings announcement are always excluded from the portfolios. In Panel A, we conduct the analysis for the ANcerno watchlist and in Panel B for the 13f watchlist. All regressions include as controls the number of stocks on the watchlist and the manager’s trading volume. Every other regression also includes the level and change in assets under management. These variables are defined in Appendix C. Standard errors are clustered at the manager level. *t*-statistics are below the parameter estimates in parenthesis; \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% level, respectively.

*Panel A: ANcerno watchlist*

Dependent Variable:		Average Cumulated Return					
		Buys Portfolio		Sells Portfolio		No-Trade Portfolio	
Horizon:		(1)	(2)	(3)	(4)	(5)	(6)
1 week		-0.0017 (-0.93)	-0.0017 (-0.57)	0.0015 (0.77)	0.0007 (0.23)	-0.0011** (-2.10)	-0.0014 (-1.56)
2 weeks		-0.0030 (-1.19)	-0.0024 (-0.60)	0.0058** (2.13)	0.0051 (1.03)	-0.0027*** (-3.37)	-0.0029** (-2.12)
4 weeks		-0.0004 (-0.10)	0.0008 (0.12)	0.0119*** (3.19)	0.0065 (1.00)	-0.0036*** (-3.41)	-0.0034* (-1.78)
8 weeks		0.0001 (0.03)	0.0035 (0.42)	0.0147*** (2.62)	0.0209** (2.35)	-0.0093*** (-5.86)	-0.0090*** (-3.75)
12 weeks		-0.0015 (-0.26)	0.0028 (0.30)	0.0039 (0.61)	0.0126 (1.13)	-0.0143*** (-7.50)	-0.0159*** (-4.76)
18 weeks		0.0071 (1.01)	0.0128 (1.15)	0.0006 (0.07)	0.0075 (0.49)	-0.0176*** (-8.00)	-0.0191*** (-4.71)
24 weeks		-0.0029 (-0.34)	0.0017 (0.12)	-0.0052 (-0.59)	-0.0085 (-0.52)	-0.0273*** (-10.83)	-0.0282*** (-6.34)
36 weeks		-0.0010 (-0.09)	0.0183 (1.03)	-0.0016 (-0.13)	0.0019 (0.08)	-0.0415*** (-13.92)	-0.0435*** (-8.52)
48 weeks		0.0153 (1.16)	0.0374* (1.73)	0.0017 (0.13)	0.0060 (0.25)	-0.0469*** (-13.14)	-0.0505*** (-8.33)
Past Trade Controls		Yes	Yes	Yes	Yes	Yes	Yes
Manager & Week fixed effects		Yes	Yes	Yes	Yes	Yes	Yes
AuM and Change in AuM		No	Yes	No	Yes	No	Yes
<i>N</i>		165,243	58,901	166,383	58,598	230,418	78,145

*Panel B: 13f watchlist*

Dependent Variable:		Average Cumulated Return					
		Buys Portfolio		Sells Portfolio		No-Trade Portfolio	
Horizon:		(1)	(2)	(3)	(4)	(5)	(6)
1 week		-0.0048 (-1.09)	-0.0054 (-1.22)	-0.0006 (-0.16)	-0.0007 (-0.17)	-0.0017* (-1.85)	-0.0013 (-1.44)
2 weeks		-0.0112* (-1.83)	-0.0122* (-1.95)	0.0040 (0.64)	0.0040 (0.65)	-0.0049*** (-3.10)	-0.0045*** (-2.91)
4 weeks		-0.0015 (-0.21)	-0.0015 (-0.20)	0.0060 (0.73)	0.0059 (0.74)	-0.0046* (-1.76)	-0.0045* (-1.72)
8 weeks		0.0020 (0.19)	0.0030 (0.27)	0.0046 (0.40)	0.0031 (0.27)	-0.0110*** (-3.89)	-0.0115*** (-4.18)
12 weeks		0.0033 (0.26)	0.0026 (0.21)	0.0057 (0.40)	0.0038 (0.27)	-0.0176*** (-4.47)	-0.0190*** (-4.59)
18 weeks		0.0179 (1.13)	0.0166 (1.04)	0.0057 (0.32)	0.0071 (0.39)	-0.0137*** (-2.59)	-0.0155*** (-2.88)
24 weeks		0.0048 (0.27)	0.0033 (0.18)	-0.0021 (-0.11)	0.0002 (0.01)	-0.0272*** (-4.24)	-0.0290*** (-4.17)
36 weeks		0.0363* (1.75)	0.0342 (1.62)	-0.0160 (-0.64)	-0.0147 (-0.58)	-0.0437*** (-5.37)	-0.0460*** (-5.25)
48 weeks		0.0598*** (2.65)	0.0574** (2.53)	-0.0073 (-0.28)	-0.0076 (-0.29)	-0.0550*** (-4.79)	-0.0580*** (-4.74)
Past Trade Controls		Yes	Yes	Yes	Yes	Yes	Yes
Manager & Week fixed effects		Yes	Yes	Yes	Yes	Yes	Yes
AuM and Change in AuM		No	Yes	No	Yes	No	Yes
<i>N</i>		57,379	56,950	61,182	60,735	84,617	83,811



**Table 8: Future Performance and Distraction – Risk-adjusted Returns**

This table shows results of manager-week level regressions of portfolio returns on the distraction measure (aggregated at the manager-level, see specification (2) in the text). Each row represents the regression results for the distraction coefficient for a different horizon of the portfolio return. Control variables are included but not reported for brevity. Distraction is defined as the fraction of a manager’s watchlist stocks that have an earnings announcement. The manager’s “Buys Portfolio” (columns 1-2) is the portfolio of all watchlist stocks (re-)bought in a given week. The manager’s “Sells Portfolio” (column 3-4) is the portfolio of all watchlist stocks sold in a given week. The manager’s “No-Trade Portfolio” (column 5-6) is the portfolio of all watchlist stocks not traded in a given week. For each portfolio stock, we first estimate factor loadings by regressing the stock’s excess return in the previous 52 weeks on the weekly Fama-French factors. We then use these factor loadings to compute the alphas over varying horizons. Portfolio returns are the average of these stock alphas weighted by watchlist weights. Stock-weeks with an earnings announcement are always excluded from the portfolios. In Panel A, we conduct the analysis for the ANcerno watchlist and in Panel B for the 13f watchlist. All regressions include as controls the number of stocks on the watchlist and the manager’s trading volume. Every other regression also includes the level and change in assets under management. These variables are defined in Appendix C. Standard errors are clustered at the manager level. *t*-statistics are below the parameter estimates in parenthesis; \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% level, respectively.

*Panel A: ANcerno watchlist*

Dependent Variable:	Average Cumulated Fama-French 3-Factor Alphas					
Horizon:	Buys Portfolio		Sells Portfolio		No-Trade Portfolio	
	(1)	(2)	(3)	(4)	(5)	(6)
1 week	-0.0031 (-1.50)	-0.0032 (-1.05)	0.0017 (0.78)	-0.0007 (-0.19)	-0.0009 (-1.57)	-0.0009 (-0.92)
2 weeks	-0.0057** (-2.08)	-0.0042 (-1.03)	0.0053* (1.78)	0.0067 (1.23)	-0.0018** (-2.23)	-0.0009 (-0.60)
4 weeks	-0.0038 (-0.95)	-0.0021 (-0.29)	0.0090** (2.22)	0.0079 (1.11)	-0.0016* (-1.65)	-0.0011 (-0.67)
8 weeks	-0.0040 (-0.79)	-0.0016 (-0.18)	0.0193*** (3.49)	0.0275*** (3.16)	-0.0029* (-1.71)	-0.0007 (-0.32)
12 weeks	-0.0056 (-0.86)	-0.0052 (-0.50)	0.0037 (0.56)	0.0125 (1.22)	-0.0068*** (-3.06)	-0.0057 (-1.61)
18 weeks	-0.0034 (-0.44)	0.0002 (0.02)	0.0008 (0.09)	0.0142 (0.93)	-0.0101*** (-4.09)	-0.0070** (-1.97)
24 weeks	-0.0092 (-0.96)	-0.0115 (-0.70)	0.0019 (0.20)	0.0051 (0.30)	-0.0121*** (-4.65)	-0.0115*** (-2.61)
36 weeks	-0.0036 (-0.29)	0.0077 (0.39)	0.0001 (0.01)	-0.0016 (-0.08)	-0.0189*** (-6.39)	-0.0189*** (-4.46)
48 weeks	0.0111 (0.74)	0.0203 (0.80)	0.0008 (0.06)	0.0158 (0.67)	-0.0225*** (-6.34)	-0.0210*** (-3.72)
Past Trade Controls	Yes	Yes	Yes	Yes	Yes	Yes
Manager & Week fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
AuM and Change in AuM	No	Yes	No	Yes	No	Yes
<i>N</i>	165,243	58,901	166,383	58,598	230,418	78,145

*Panel B: 13f watchlist*

Dependent Variable:		Average Cumulated Fama-French 3-Factor Alphas					
Horizon:	Buys Portfolio		Sells Portfolio		No-Trade Portfolio		
	(1)	(2)	(3)	(4)	(5)	(6)	
1 week	-0.0078* (-1.71)	-0.0084* (-1.84)	0.0027 (0.60)	0.0021 (0.48)	-0.0007 (-0.70)	-0.0004 (-0.36)	
2 weeks	-0.0167** (-2.49)	-0.0174** (-2.58)	0.0083 (1.19)	0.0076 (1.12)	-0.0011 (-0.60)	-0.0006 (-0.35)	
4 weeks	-0.0057 (-0.60)	-0.0051 (-0.54)	0.0152* (1.67)	0.0140 (1.58)	0.0015 (0.46)	0.0020 (0.63)	
8 weeks	-0.0021 (-0.17)	-0.0018 (-0.13)	0.0170 (1.30)	0.0142 (1.10)	-0.0000 (-0.00)	-0.0002 (-0.05)	
12 weeks	0.0020 (0.14)	0.0018 (0.13)	0.0144 (1.00)	0.0115 (0.83)	-0.0044 (-1.07)	-0.0048 (-1.19)	
18 weeks	0.0100 (0.62)	0.0106 (0.65)	0.0112 (0.61)	0.0119 (0.66)	-0.0028 (-0.50)	-0.0037 (-0.68)	
24 weeks	0.0066 (0.33)	0.0062 (0.30)	0.0241 (1.14)	0.0242 (1.17)	-0.0122** (-2.40)	-0.0125** (-2.43)	
36 weeks	0.0488* (1.95)	0.0472* (1.85)	0.0184 (0.75)	0.0194 (0.80)	-0.0296*** (-3.70)	-0.0295*** (-3.58)	
48 weeks	0.0493 (1.57)	0.0473 (1.48)	0.0362 (1.39)	0.0348 (1.34)	-0.0418*** (-3.39)	-0.0417*** (-3.38)	
Past Trade Controls	Yes	Yes	Yes	Yes	Yes	Yes	
Manager & Week fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	
AuM and Change in AuM	No	Yes	No	Yes	No	Yes	
<i>N</i>	57,379	56,950	61,182	60,735	84,617	83,811	

**Table 9: Transaction Costs and Distraction**

This table shows results of stock-manager-week level regressions of transaction costs on the distraction measure (specification (1) in the text). Distraction is defined as the fraction of a manager's watchlist stocks that have an earnings announcement. Transaction costs are defined as the average daily realized transaction spread, where the spread is the difference between the transaction price and the midquote price for buys (and vice versa for sells). Total transaction costs is the trade volume-weighted average of the transaction costs for buys and sells. Transaction costs are missing when the manager doesn't trade the stock in a given week. In Panel A, we conduct the analysis for the ANcerno watchlist and in Panel B for the 13f watchlist. All variables are defined in Appendix C. Standard errors are clustered at the manager level. *t*-statistics are below the parameter estimates in parenthesis; \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% level, respectively.

*Panel A: ANcerno watchlist*

Dependent Variable:	Average Transaction Costs (Spread)					
	Buys		Sells		Total	
	(1)	(2)	(3)	(4)	(5)	(6)
Distraction (Ancerno)	-0.0041 (-0.26)	0.0376 (1.51)	0.0420*** (2.73)	0.0813*** (2.89)	0.0153 (1.44)	0.0501*** (2.92)
Stocks on watch list (Ancerno) (log)	0.0016 (0.74)	0.0040 (0.81)	-0.0017 (-0.76)	-0.0013 (-0.23)	0.0011 (0.70)	0.0018 (0.48)
Trade volume manager (t-12,t-1) (log)	-0.0004 (-0.37)	0.0009 (0.41)	0.0013 (1.15)	0.0013 (0.50)	0.0005 (0.57)	0.0014 (0.75)
Trade number (t-12,t-1)	-0.0000 (-0.46)	-0.0001* (-1.76)	0.0000 (0.01)	-0.0001 (-1.17)	0.0000 (0.77)	-0.0001 (-1.41)
Assets under Management (log)		-0.0017 (-0.73)		-0.0008 (-0.25)		-0.0022 (-0.98)
Change in AuM (%)		0.0031 (0.31)		0.0071 (0.50)		0.0042 (0.49)
Number of Observations	10,282,173	3,543,605	10,151,215	3,147,353	16,280,367	5,244,306
Adjusted-R <sup>2</sup>	0.17	0.08	0.18	0.13	0.02	-0.03
Manager×Week & Stock×Week fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

*Panel B: 13f watchlist*

Dependent Variable:	Average Transaction Costs (Spread)					
	Buys		Sells		Total	
	(1)	(2)	(3)	(4)	(5)	(6)
Distraction (Ancerno)	0.0195 (0.64)	0.0202 (0.66)	0.0082 (0.26)	0.0073 (0.23)	0.0051 (0.30)	0.0035 (0.21)
Stocks on watch list (Ancerno) (log)	-0.0025 (-0.39)	0.0023 (0.33)	-0.0020 (-0.38)	-0.0007 (-0.11)	-0.0042 (-0.81)	0.0000 (0.01)
Trade volume manager (t-12,t-1) (log)	0.0016 (0.84)	0.0016 (0.82)	0.0016 (0.71)	0.0018 (0.76)	0.0022 (1.54)	0.0022 (1.57)
Trade number (t-12,t-1)	-0.0001 (-1.17)	-0.0001 (-0.94)	-0.0001 (-0.93)	-0.0001 (-0.92)	-0.0001 (-0.86)	-0.0000 (-0.49)
Assets under Management (log)		-0.0064 (-1.18)		-0.0032 (-0.65)		-0.0066 (-1.42)
Change in AuM (%)		0.0007 (0.05)		0.0299 (1.46)		0.0111 (0.87)
Number of Observations	3,144,367	3,137,990	2,786,946	2,778,429	4,608,374	4,594,492
Adjusted-R <sup>2</sup>	0.05	0.05	0.11	0.11	-0.06	-0.06
Manager×Week & Stock×Week fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

**Table 10: Distraction and Trading Propensity – Robustness**

This table shows robustness checks for stock-manager-week level regressions of managers trading propensity on the distraction measure (specification (1) in the text). Each row represents a different robustness check as indicated in the row header (and explained in section V). The specification is otherwise the same as the one from Table 2. For brevity, the table only shows the coefficient on the distraction measure. All variables are defined in Appendix C. Except for row 1, standard errors are clustered at the manager level. *t*-statistics are below the parameter estimates in parenthesis; \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable:		Trade (dummy)			
Sample:	ANcerno Sample		13f Sample		
	(1)	(2)	(3)	(4)	
1) Clustering by week	-0.0611*** (-4.26)	-0.0837*** (-4.70)	-0.0354*** (-3.86)	-0.0353*** (-3.86)	
2) Exclude same industry	-0.0581*** (-4.49)	-0.0795*** (-4.26)	-0.0340*** (-3.21)	-0.0338*** (-3.18)	
3) Drop Earnings Announcements	-0.0634*** (-4.62)	-0.0837*** (-4.15)	-0.0395*** (-3.55)	-0.0392*** (-3.51)	
4) Control for trading in EA stocks	-0.2060*** (-12.62)	-0.2132*** (-9.31)	-0.0903*** (-6.27)	-0.0899*** (-6.21)	
5) Alternative Distraction Measure	-0.0629*** (-4.49)	-0.0834*** (-4.06)	-0.0419*** (-3.73)	-0.0416*** (-3.69)	
Past Trade Controls	Yes	Yes	Yes	Yes	
Manager×Week & Stock×Week fixed effects	Yes	Yes	Yes	Yes	
AuM and Change in AuM	No	Yes	No	Yes	