Do Institutional Investors Have an Ace up Their Sleeves?
--Evidence from Confidential Filings of Portfolio Holdings[1]

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ABSTRACT

This paper studies the holdings by institutional investors that are filed with a significant delay through amendments to Form 13F and that are not included in the standard 13F holdings databases (the "confidential holdings"). We find that asset management firms (hedge funds and investment companies/advisors) in general, and institutions that actively manage large and risky portfolios in particular, are more likely to seek confidentiality. The confidential holdings are disproportionately associated with information-sensitive events such as mergers and acquisitions, and include stocks subjected to greater information asymmetry. Moreover, the confidential holdings of asset management firms exhibit superior risk-adjusted performance up to four months after the quarter end, suggesting that these institutions may possess short-lived information. Our study highlights the tension between the regulators, public, and investment managers regarding the ownership disclosure, provides new evidence in the cross-sectional differences in the performance of institutional investors, and highlights the limitations of the standard 13F holdings databases.

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This paper studies the holdings by institutional investors that are filed with a significant delay through amendments to Form 13F and that are not included in the standard 13F holdings databases (the "confidential holdings"). We find that asset management firms (hedge funds and investment companies/advisors) in general, and institutions that actively manage large and risky portfolios in particular, are more likely to seek confidentiality. The confidential holdings are disproportionately associated with information-sensitive events such as mergers and acquisitions, and include stocks subjected to greater information asymmetry. Moreover, the confidential holdings of asset management firms exhibit superior risk-adjusted performance up to four months after the quarter end, suggesting that these institutions may possess short-lived information. Our study highlights the tension between the regulators, public, and investment managers regarding the ownership disclosure, provides new evidence in the cross-sectional differences in the performance of institutional investors, and highlights the limitations of the standard 13F holdings databases.

Mandatory disclosure of ownership in public companies by investors is an essential part of the securities market regulation. At the core of this regulation is the Section 13(f) of the Securities Exchange Act of 1934 that requires institutional investment managers to disclose their quarterly portfolio holdings.[6] The quarterly reports, filed to the Securities and Exchange Commission (SEC) on the Form 13F, disseminate the public information about holdings and investment activities of institutional investors. An exception to the rule, however, provides confidential treatment of certain holdings through *amendments* to the *original* Form 13F. When adequate written factual support is provided for certain holdings, this provision allows the institutions to delay the disclosure of those holdings, usually up to one year. Throughout the paper, we refer to these amendments as "confidential filings," and the positions included in such filings as "confidential holdings."

In this paper, we address two issues related to confidential holdings. First, we examine the motives for institutional investors to seek confidentiality. In particular, we investigate if the confidential holdings are information-driven by studying the institutional and stock characteristics associated with such holdings. Second, we estimate the abnormal performance of the confidential holdings, and analyze the cross-sectional variation in the performance of these holdings for different types of institutional

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[6] Section I.A. contains a more detailed description of the institutional background regarding the ownership disclosure.

investors.

Our study contributes to a large literature that studies the reported quarterly portfolio holdings of institutional investors to evaluate these investors' performance and managerial ability, to extract information from the reported holdings to form investment strategies, or to relate institutional ownership to corporate policies and events. However, the prior papers use only the data on *original* 13F filings, usually from the Thomson Reuters Ownership Data (formerly the CDA/Spectrum database), and therefore ignore the confidential holdings because they are not included in the standard commercial databases.

Apart from minimizing price impact during ongoing acquisitions and dispositions, incentives to seek confidentiality most likely arise from private information as perceived by the investment manager. It is in the best interest of investment managers not to disclose their informed positions before they have reaped the full benefits of their superior information. Such incentives are often in conflict with the regulatory rules. For example, Perry Corp, a well-known hedge fund, attempted to keep secret its accumulation of position in Mylan Inc. in 2004 when the company was contemplating a merger with King Pharmaceuticals Inc. The deal ultimately fell through; nevertheless, Perry was under investigation by the SEC on the allegation of improperly withholding details about a large investment in an effort to profit. [7] Though the two parties settled in July 2009, the case highlights continuing tension between the desire of some investors to withhold information that could reveal their investment strategies, and the demand of the public and regulators for transparency.

As a matter of fact, several hedge funds and successful investors including Warren Buffett have appealed to the SEC for an exemption from revealing their positions in the 13F forms but have been unsuccessful in convincing the SEC. Philip Goldstein, an activist hedge fund manager at Bulldog Investors likens his stock holdings to "trade secrets" as much as the protected formula used to make Coke, and contends that complying with the 13F rule "constitute[s] a 'taking' of [the fund's] property without just compensation in violation of the Fifth Amendment to the Constitution."[8] In the wake of the "quant

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[7] For the SEC litigation release of this case, please see: http://www.sec.gov/litigation/admin/2009/34-60351.pdf. Perry was accused of violating the rule regarding Schedule 13D which requires prompt and proper disclosure of positions above 5%.

[8] For a more detailed discussion, see Philip Goldstein's interview in September 12, 2006 issue of *Business Week*:

meltdown" in August 2007, quant hedge funds blamed the ownership disclosure for inviting "copycats" into an increasingly correlated and crowded space of quant strategies, which contributed to the "death spiral" in the summer of 2007 when many funds employing similar strategies attempted to cut their risks simultaneously in response to their losses (Khandani and Lo (2007)). Most vocal among them was D. E. Shaw & Company who demanded confidentiality for its whole portfolio in order to guard its proprietary models, but the request was denied by the SEC.

Though confidential treatment is meant to be the exception rather than the rule, some institutional investors seem to have taken advantage of it for the benefit of delayed disclosure. Our study is based on a comprehensive collection of all original and amendments to 13F filings by all institutions during the period of 1999-2007, where the amendments include both approved and rejected applications for confidential treatment. We find that 233 institutions (7.2% of all 13F filing institutions) have resorted to confidential treatment at least once, and the average (median) value of the confidential holdings amounts to 27.3% (12.3%) of the total value of securities included in both the original and confidential 13F holdings.

Analyzing the original and confidential holdings together uncovers several interesting results, which are consistent with the premise that institutions with informational advantages are more likely to seek confidentiality. Further, in terms of the types of stocks included in the confidential holdings, our findings are consistent with the motives regarding both withholding private information and minimizing price impact. Specifically, we document three main results. First, we find that hedge funds and investment companies/advisors are more likely to seek confidentiality compared to banks, insurance companies, and other institutions. Moreover, institutions resorting to confidential treatment tend to manage large and concentrated portfolios, and adopt non-standard investment strategies (in terms of low loadings on the common factors and high idiosyncratic risks). Prior literature (e.g., Kacperczyk, Sialm, and Zheng (2005), Titman and Tiu (2009)) has shown that these characteristics are associated with more actively managed institutions that possess information and/or are skilled. Our results suggest that such institutions are more likely to seek confidentiality to benefit from their private information. Second, we observe that

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http://www.businessweek.com/print/investor/content/sep2006/pi20060913_356291.htm.

acquisition-related confidential holdings are more likely to consist of stocks associated with information-sensitive events such as mergers and acquisitions, and to include stocks subject to greater information asymmetry as measured by market capitalization, trading liquidity, analyst following, and probability of distress; while disposition-related confidential holdings are prominently characterized by relatively poor past return performance. Finally, acquisition-related confidential holdings of asset management firms (hedge funds and investment companies/advisors) exhibit higher abnormal performance compared to their original holdings. Moreover, this outperformance is short-lived (for a horizon up to four months) though economically significant. For example, as measured by value-weighted portfolio returns, the acquisition-based confidential holdings of asset management firms outperform their original holdings by 1.06% over a two-month horizon (6.36% on an annualized basis) after the quarter-end portfolio date.

Our study provides new evidence on the skill of asset-management firms and their ability to benefit from their private information through confidential holdings. It also has implications for researchers and regulators concerned with the transparency of financial institutions (especially the lightly-regulated hedge funds and private funds) and the role of mandatory disclosure of their investments. We believe that our study based on a complete collection of institutional investors' quarterly holdings can help settle the controversy regarding the value and effect of the "non-transparent" holdings and identify the key factors that influence the cross sectional variation in the confidential filing activities. Finally, our study assesses the limitations of using the conventional institutional quarterly holdings databases that mostly exclude confidential holdings. While any error due to the omission in evaluating the aggregate portfolio performance of all institutions is likely to be small, there could be a significant bias in analyzing position changes of specific types of institutions and those around specific events (such as M&A and block building).

Our paper is most closely related to the literature that evaluates the performance and information content of institutional investors' holdings. For example, Grinblatt and Titman (1989, 1993), Grinblatt, Titman, and Wermers (1995), Daniel, Grinblatt, Titman, and Wermers (1997), Chen, Jegadeesh, and Wermers (2000), Wermers (2000, 2003, 2006), Kacperczyk, Sialm, and Zheng (2005, 2008), Wermers, Yao, and Zhao (2007), and Huang and Kale (2009) analyze whether mutual funds outperform their

benchmarks using the holdings data. Griffin and Xu (2009) and Aragon and Martin (2009) conduct a similar analysis with another class of active managers—hedge funds.[9] By incorporating the confidential holdings and comparing them to the original holdings, our study provides a more complete picture of the ability and performance of a wide range of institutions.

Our paper also contributes to a strand of literature that studies the effects of portfolio disclosure on the investment decisions of money managers (Musto (1997, 1999)), theoretical implications of portfolio disclosure and performance evaluation of mutual funds (Kempf and Kreuzberg (2004)), the consequences of frequent portfolio disclosure such as free riding and front running by other market participants (Wermers (2001), and Frank, Poterba, Shackelford, and Shoven (2004)), and determinants of portfolio disclosure and its effect on performance and flows (Ge and Zheng (2006)). The findings in our study suggest that seeking confidential treatment is one effective way for the investment managers to attenuate some of the concerns analyzed in these papers.

The remainder of the paper is organized as follows. Section I provides background information regarding the SEC ownership disclosure rules. Section II describes the construction of sample, presents the overview of original and confidential filings, and outlines the empirical motivations. Section III analyzes the determinants of confidential filings at the institution level and confidential holdings at the stock level. Section IV examines the difference between the abnormal returns of confidential holdings and those of original holdings, and investigates the cross-sectional variation in these differences across different types of institutional investors. Finally, Section V discusses policy implications before concluding.

I. Institutional Background

The current ownership disclosure rules mandated by the SEC consists of five overlapping parts: Schedule 13D for large (above 5%) active shareholders, Schedule 13G for large passive shareholders; Form 13F for general institutional holdings; Section 16 regarding ownership by insiders; and Form N-

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[9] Aragon and Martin (2009) is among the very few papers that use the original 13F filings directly, instead of the filings complied by Thomson Reuters. They examine a random sample of 300 hedge funds from the SEC EDGAR database, and do not account for confidential filings in the 13F amendments filed separately.

CSR for quarterly disclosure of holdings required for mutual funds.[10]

Among the five regimes, the Form 13F requirement covers by far the largest number of institutional investors: all institutions that have investment discretion over $100 million or more in Section 13(f) securities (mostly publicly traded equity; but also include convertible bonds, and some options) are required to disclose their quarter-end holdings in these securities. We call the date when the Form 13F is filed with the SEC the "filing date," and the quarter-end date on which the portfolio is being disclosed the "quarter-end portfolio date." According to the SEC rule, the maximum lag between the two dates is 45 calendar days. As an exception to the rule, the SEC allows for the confidential treatment of certain portfolio holdings of institutions for which they can file 13F amendments. The provision allows the institutions to delay the disclosure of their holdings up to one year from the date required for the original 13F form. This one-year period can be extended further if an instruction with additional factual support is filed 14 calendar days in advance of the expiration date.

SEC began to adopt the Section 13(f) rules in 1978, which mandate the Form 13F quarterly reports by investment managers and allow confidential treatment of filings as deemed appropriate by the commission. In the legislative history of Section 13(f), the Senate Committee on Banking, Housing, and Urban Affairs pointed out that: "[t]he Committee believes that generally it is in the public interest to grant confidential treatment to an ongoing investment strategy of an investment manager. Disclosure of such strategy would impede competition and could cause increased volatility in the market place." [11] Authorized by Section 13(f)(3), SEC may grant confidential treatment as it deems necessary or appropriate in the public interest or for the protection of the investment manager and the investors whose assets are under management. In 1979, SEC clarified the procedural and substantive criteria that confidential requests must satisfy for them to be granted, in an effort to standardize such requests. Gaining confidential treatment is not meant to be a trivial task and is not guaranteed. [12] The applying

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[10] The SEC adopted enhanced rules on mutual funds expense and portfolio disclosure in 2004, requiring registered management investment companies to file their complete portfolio holdings with the Commission on a quarterly basis, instead of on a semi-annual basis as previously mandated.

[11] Report of Senate Comm. on Banking, Housing and Urban Affairs, S. Rep. No. 75, 94th Cong., 1st Sess. 87 (1975).

[12] For SEC release, please see http://www.sec.gov/rules/final/34-15979.pdf. The SEC official guideline for 13F

institution must provide a sufficient factual basis and a statement on the grounds of the objection to public disclosure, including a detailed description of the manager's investment strategy, e.g., risk arbitrage that warrants confidential treatment, along with supporting analysis. Furthermore, the evidence for confidential treatment will not be applied to an entire portfolio appearing on a 13F form, but rather on a position-by-position basis. Finally, such applications are subject to SEC approval. The time that SEC takes to review individual applications and make the decision varies, with the typical range being two to twelve months. If denied, the institution is obligated to file an amendment disclosing all the confidential positions immediately (within six business days from the date of denial).[13]

In 1998, the SEC tightened the rules and restricted the conditions for accepting the applications for confidentiality.[14] The triggering event was the confusion over the 13F reporting of investor Warren Buffett which caused a significant decline in the share price of Wells Fargo & Co. in August 1997. The 13F form did not show Berkshire Hathaway's well-known 8% stake in the bank, only because it was reported in a confidential filing. But the misunderstanding in the market caused Wells Fargo's stock price to drop by 5.8% in one hour after Buffett's 13F filing.[15] Our sample period (1999-2007) falls into the new regime when there are more stringent rules for 13F amendments as the applying institutions need to convince the SEC that revelation of these holdings can hurt their competitive position.

The extreme case of D. E. Shaw illustrates the tension arising from such a process. On August 14, 2007, D.E. Shaw & Company, one of the largest quant-oriented hedge fund managers, filed an entirely blank Form 13F for its second-quarter portfolio. That is, the fund manager was seeking from the SEC a confidential treatment of its entire portfolio, based on the argument that "copycat investors" were mimicking its strategies. The SEC denied the request on October 19, forcing the firm to file an amended

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amendments is available at: http://www.sec.gov/about/forms/form13f.pdf. Section "Instructions for Confidential Treatment Requests" details the requirements.

[13] For example, see http://www.sec.gov/rules/other/34-52134.pdf for the rejection of the request from a hedge fund, Two Sigma. There are several other cases of rejections of confidential treatment requests including those by Warren Buffett:
> http://www.sec.gov/rules/other/34-50206.htm,
> http://www.sec.gov/rules/other/34-43142.htm, and
> http://www.sec.gov/litigation/admin/34-43909.htm.

[14] See http://www.sec.gov/divisions/investment/guidance/13fpt2.htm for the letter issued by the SEC in June 1998 where they explain the specific requirements and conditions for granting confidentiality.

[15] For a full story, please see "Large Investors Face Stiff Rules on SEC Filings," by Paul Beckett, *The Wall Street Journal*, June 19, 1998.

June 30th Form 13F on October 29. That amended filing covered 3,991 positions valued at $79 billion. Similar but less extreme requests from D. E. Shaw were rejected by the SEC before.[16] Other frequent users of confidential filings include hedge funds (e.g. Dolphin Asset, Stark Investments, and Magnetar Financial) and investment bank trading desks (e.g. Lehman Brothers, Goldman Sachs & Co, and UBS).

It is worth noting that the confidential treatment under Section 13(f) does not over-ride other SEC ownership disclosure rules. For example, a beneficial owner of more than 5% of a company's equity will need to file Schedule 13D or 13G, even if the position is under confidential treatment in the owner's 13F filing. The same can be said about the holdings disclosure required for registered investment companies (mostly mutual funds), which was changed from a semi-annual to a quarterly basis (at a 60-day delay) in 2004. Nevertheless, there are more than sporadic observations in our sample where the confidential position exceeds 5% (such as the Warren Buffett position in Wells Fargo) or where the filer is a mutual fund management company (such as T. Rowe Price and American Funds). In such cases, the confidential treatment may still afford the institutions effective delay if the 13F disclosure is the most binding compared to the normal delay allowed by the Schedule 13G (45 days from the year-end) or by the disclosure rules for mutual funds (semi-annual for most of our sample period).[17]

If investment managers choose to file 13F amendments for securities about which they think that they have superior private information, these holdings are likely to be more informative than the regularly-disclosed holdings. Despite their potential importance, confidential holdings are usually not included in the conventional databases of institutional quarterly holdings.[18] For example, the manual for Thomson Reuters Ownership Data (formerly the CDA/Spectrum database), available through WRDS, provides the following caveat about its S12 (for mutual funds) and S34 (for institutions) data: "The

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[16] See "SEC: D.E. Shaw Disclosure Request Part of Regular Process," by Marietta Cauchi, *Dow Jones Newswires,* January 2005.

[17] Obviously the confidential treatment has become essentially unnecessary for mutual funds after 2004. In fact, some mutual fund companies, such as the Capital Research and Management Company (the management company of American Funds), have requested the SEC to extend the confidential treatment to mutual fund quarterly holdings disclosure shortly after the rule change (but without success). In our sample, confidential holdings by mutual fund management companies after 2004 most likely belong to these institutions' non-mutual fund assets. For this reason, confidential holdings cannot explain the "return gap" documented by Kacperczyk, Sialm, and Zheng (2008) after 2004. Moreover, because 13F holdings reflect the aggregated positions at the institution level, we cannot attribute confidential holdings in 13F filings of an institution to individual funds within.

[18] The other potential exclusion by these databases concerns non-equity holdings, such as convertible bonds and options, see Aragon and Martin (2009) for a detailed description of this issue.

holdings in the S12 and S34 sets are rarely the entire equity holdings of the manager or fund. There are minimum size requirements and confidentiality qualifications."

An example from the top 20 confidential filers illustrates the omission by the Thomson Reuters database. The chosen institution is Stark Onshore Management LLC (manager number 10375 in Thomson Reuters). In Table I, we list all the institution's confidential holdings during our sample period, and cross check with its holdings reported in Thomson Reuters. We observe that, except for one stock (Rouse Co., CUSIP = 77927310), all the other 54 confidential holdings in the amendments are not included in the latter.

[Insert Table I here.]

Therefore, arguably the most interesting facet of portfolio disclosure has been this far ignored in the extant literature. Our study fills this gap in the literature. We examine the motives for seeking confidentiality — more specifically to determine if it is information-driven. We then estimate the abnormal performance of the confidential holdings, and analyze the cross-sectional variation in the frequency of resorting to confidentiality and the performance of confidential holdings for different types of institutional investors.

II. Sample Overview and Empirical Motivation

A. Sample of Original and Amendments to 13F Filings

A key data component to this study is the original 13F filings and amendments to these filings by all institutions. As we mentioned in the previous section, the standard databases do not provide a complete collection of these filings. Hence, we retrieve directly both the original and amendment 13F filings dated between March 1999 and June 2007 from the SEC's website (EDGAR). We start in 1999 since SEC began to require electronic filing of Form 13F through the EDGAR system in January 1999; we end the sample of filings in June 2007 to allow for a one-year period in ex post performance evaluation. Our full sample period happens to fall into a uniform policy regime after the SEC tightened up the rules for approving confidential treatment in 1998 (see Section I for more information)

Despite the large variation in reporting style and format, we are able to process the complete holdings information for 91% of all the 13F filings using manual processing, combined with automated computer programs. The resulting list of filing institutions in our initial sample amounts to 3,315, including 86.1% of the institutions that report their original 13F filings to Thomson Reuters over the sample period, plus 174 more institutions that do not appear in the Thomson database at all. [19]

Amendments to 13F filings contain two types of information: disclosure of an increase in a position that was previously filed in or a new holding that was previously excluded from the original filings. We define a confidential holding as one that was excluded from the original filing or the difference between the restated position and the originally filed position. Our results are qualitatively similar if we impose a threshold for the difference in the second component or simply exclude the second component. Based on these criteria, our initial sample consists of 1,958 confidential filings and 55,185 original 13F filings. As we discussed earlier, the amendment filings in our sample include applications both approved and denied by the SEC. By searching for key words on the first page of the amendments, we are able to separate amendments filed before or upon the expiration of approved confidential treatment and those filed in response to SEC denials. [20] Based on this algorithm, the SEC rejected about 16% of all the confidential treatment applications during our sample period.

Figure 1 plots the time series of both types of filings, as well as the number of approved confidential filings, at the quarterly frequency. While the number of original filings increased steadily over our sample period, the time series for the number of confidential filings was choppier but stays roughly in proportion to the first series. Moreover, the SEC's approval rate has trended higher since 2005.

[Insert Figure 1 here.]

Table II summarizes the cross-sectional distribution of both types of filings. Panel A reports the delay in days between filings and their corresponding quarter-end portfolio dates. Over 86% of original

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[19] We restrict our sample of original filings to the processed 13F filings directly retrieved from the SEC, rather than all holdings reported to Thomson Reuters. The idea is to maintain symmetry and comparability between original and confidential filings as the latter mostly do not make their way to Thomson Reuters.

[20] We search for the appearance of certain negative phrases on the front page to identify amendments filed in response to SEC denials of the confidential treatment such as "denied" and "no longer warranted".

filings are filed within 45 days of the end of quarter, conforming to the requirement by SEC.[21] On the

other hand, more than 93% of confidential filings are filed more than 45 days from the quarter-end

portfolio date, justifying resorting to the amendments for delayed disclosure. Surprisingly, the distribution

of the duration does not differ qualitatively between amendment filings that result from SEC approvals of

confidential treatment and those from rejections (not tabulated). The lack of a difference has two

implications: First, some institutions may file amendments before the approved term for confidential

treatment expires (usually for a year) because the information on the confidential holdings has already

become stale. Second, even denied applications effectively afford significant delays in disclosure of

confidential holdings (the modal delay time is between six and twelve months).[22]

[Insert Table II here.]

In our later analysis, we exclude confidential holdings filed within 45 days of delay, as motives to

conceal positions in these filings cannot be justified. We also filter out both types of filings with

extremely long delays from their quarter-end portfolio dates: more than a 180-day delay for the original

filings and more than a 1505-day (four years plus the 45 days allowed for the original 13F filings) delay

for the confidential filings. We suspect that these observations are results of data recording errors or

irregular circumstances. These three filters combined remove less than 1.3% of original filings and about

8.6% of confidential filings (see Table II Panel A). Our results are not sensitive to the particular

numerical choices employed in these filters. Moreover, our study focuses on equity holdings for which

security-level characteristics are readily available and risk-adjusted performance measures are well-

defined.

Our final sample consists of 54,154 original filings by 3,246 institutions, and 1,592 confidential

filings by 233 institutions. Panel B of Table II summarizes the number of filings, number of institutions,

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[21] Aragon and Martin (2009) also found significant proportions of delayed original 13F filings (i.e., beyond 45-days). There is no explicit SEC rule regarding the penalty of occasional lateness in 13F filing, and we do not find a significant number of institutions in our sample which were repeatedly late in their original 13F filings.

[22] The long time it takes for the SEC to reject applications for confidential treatment that lack adequate factual support could potentially invite abuse, that is, some institutions without legitimate reasons may still resort to frequent applications for confidentiality just to enjoy the effective delay in disclosure. Our informal conservation with the SEC staff indicates that institutions which received repeated rejections could receive warnings from the SEC and will be subject to more timely review in future applications.

the dollar value, and the number of stocks in this final sample. Conditional on an institution filing both an original and an amended 13F for its holdings at a given quarter end, the dollar value of the stock positions included in the confidential filings is significant: the average (median) value of securities in a confidential filing is 27.3% (12.3%) of the value of the complete portfolio of the institution. In other words, the typical institution tends to "mask" one-eighth to one-quarter of its portfolio from the regular disclosure when they have both types of filings in a given quarter. The weight of confidential holdings in total portfolios in terms of number of stocks is smaller, indicating that these holdings tend to be larger-than-usual positions. The average confidential holding represents 1.2% of all the shares outstanding by the issuer, as compared to the average position of 0.69% in the original holdings.

Finally, Panel C of Table II lists the ten institutions that were the most frequent confidential filers during our sample period, and the ten institutions that received the highest number of rejections from the SEC for their confidentiality applications. Berkshire Hathaway is on both lists. D. E. Shaw and Caxton Corporation (currently renamed "Caxton Associates"), two of the top ten hedge fund companies in the U.S. as of 2007, have been rejected by the SEC for 100% of their applications during our sample period.[23]

B. Motivations for Empirical Analyses

Our study is the first to present the prevalence and distribution of confidential filings by institutions. It is natural to ask questions about the incentives and consequences of seeking confidential treatment.

First, we hypothesize on the institutional characteristics that are associated with their propensity to use confidential filings. Institutions that engage in active portfolio management should be the most likely applicants for confidential treatment if the incentive is to delay disclosing holdings that could reveal their trading strategies. The degree to which institutional investors collect and process information

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[23] We followed these two institutions out of the sample period. Caxton ceased to seek confidential treatment after October 2005 when eight of its applications were rejected all at once. D. E. Shaw stopped confidential filing after its last one in our sample in June 2007 for about a year. It has filed three applications since June 2008 each of which covers 2-3 stocks only (while the number was in hundreds and thousands before). All the three applications received speedy reviews and were approved by the SEC. These two cases provide some evidence about the possible SEC actions against institutions suspicious of abusing of the rules for 13F amendment filings, consistent with the discussion in previous footnote.

and their ability to benefit from such activities will vary. However, in general, hedge funds and investment advisors are more likely to engage in proprietary trading strategies, where private information is essential in delivering superior returns, compared to banks, insurance companies and financial arms of corporations. Beyond the broad categories, certain characteristics that are indicative of institutions' active management strategies—such as portfolio concentration, turnover rate, and portfolio idiosyncratic risk— should also be associated with higher frequencies of confidential filings.

Our second strand of analysis examines the determinants of confidential holdings in terms of stock characteristics. If the primary motivation of seeking confidentiality is to preserve the value of private information, confidential holdings should demonstrate such features. First, confidential holdings should consist disproportionately of stocks that are involved in information-sensitive events. For example, an explicit case identified by the SEC where positions are allowed confidentiality is related to open risk arbitrage positions. Hence, we expect target companies in M&A transactions to appear in confidential holdings with higher than usual probabilities. A more general determinant for a stock to be incorporated in the confidential portfolios of institutions is the degree of information asymmetry. Greater information asymmetry provides more opportunities for profitable private information acquisition activities.[24] This incentivizes the institutions to conceal the positions in such stocks through confidential filings. As a result, several proxies for firm-specific drivers of information asymmetry, such as firm size, distress risk, and analyst following, should be correlated with the probabilities that individual stocks are included in the confidential holdings. Another motive for seeking confidential treatment is to minimize the price impact during an ongoing acquisition or disposition. Thus, low trading liquidity should increase the probability of a stock being treated confidentially. Needless to say, information asymmetry and illiquidity are closely related.

Finally, the motives to seek confidential treatment have implications for the return performance of the confidential holdings. If some institutions resort to confidential treatment to hide their ongoing acquisitions/dispositions that were driven by private information, or to hide a position where superior

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[24] In fact, some investors having private information can lead to greater information asymmetry. Since we do not examine the determinants of information asymmetry, we are not concerned about the direction of causality here.

information has yet to run its full course, then one would expect that the confidential holdings exhibit positive abnormal performance compared to the holdings disclosed in the corresponding original filings. Furthermore, this relation should be more significant for asset management companies or institutions with active portfolio management strategies. On the other hand, if confidential treatment is sought to minimize price impact or to avoid front-running on unfinished transactions that are liquidity-driven, then the realized performance of the confidential holdings should be neutral.[25] Lastly, if the motive of seeking confidential treatment is to make it more difficult for observers of 13F holdings (potential copycats) to reverse-engineer the trading strategy, then the confidential holdings could be a portion of the portfolio that is potentially informative of the trading strategy, rather than most predictive of future returns. As such, the confidential holdings do not necessarily enjoy superior performance relative to the disclosed part of the portfolio. Nevertheless, if such trading strategies are indeed based on superior private information, then the performance of the overall portfolios of these institutions should be higher.

III. Determinants of Confidential Filings and Confidential Holdings

This section discusses the determinants of confidential filings at the institutional level (using institution-quarter data) and confidential holdings at the stock level (using institution-quarter-holding data). Unless otherwise specified, we incorporate quarterly fixed effects and adjust standard errors for heteroskedasticity and clustering at the institution level.

A. Institutional Characteristics and Propensity of Confidential Filings

We resort to the following models to relate the characteristics of institutions to their propensity to use confidential filings. The first is a probit model:

$$(CF_{j,q} > 0) = (\beta InstChar_{j,q} + \lambda_q + \varepsilon_{j,q} > 0), \tag{1}$$

and the second is tobit model:

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[25] Such a result does not necessarily negate the benefits of confidential treatment to the institution. The institution might otherwise have to incur higher transaction costs or less favourable price impact in order to finish its acquisition/disposition. Such costs are not captured by returns imputed from changes in holdings which ignore transaction costs.

$$
\begin{aligned}
(\textit{Latent}) \quad & CF_{j,q}^{*} = \gamma \, InstChar_{j,q} + \lambda_{q} + \omega_{j,q}, \\
(\textit{Observed}) \quad & CF_{j,\,q} = \max(CF_{j,q}^{*}, 0).
\end{aligned}
\tag{2}
$$

The dependent variable in (1), $(CF_{j,q} > 0)$, is the indicator variable for the existence of a confidential filing in the (j, q) institution-quarter. The dependent variable in (2) is the dollar value proportion of confidential holdings in the total portfolio (that include both confidential holdings and holdings disclosed in the original 13F filings) of the given institution-quarter. The regressors in both models include a vector of institutional characteristics variables (*InstChar*) and quarterly dummies to control for unspecified time effects.

Results are reported in Table III. In addition to the coefficients and their associated t-statistics, we also report the average partial effects (APE) to facilitate the interpretation of the economic magnitude. For the probit model, the APE is defined as:

$$
APE = E\big(\partial \Pr(CF_{j,\,q} > 0) / \partial InstChar_{j,\,q} \mid InstChar_{j,\,q}, \lambda_{q} \big).
\tag{3}
$$

Our estimates of the APE are the empirical analogue to the expression above:

$$
\widehat{APE} = \hat{\beta} \left[\frac{1}{n} \sum_{j,\,q} \phi \big(\hat{\beta} \, InstChar_{j,q} + \hat{\lambda}_{q} \big) \right],
\tag{4}
$$

where $\phi(\bullet)$ is the standard normal probability density function. The APE associated with a covariate is determined by both the underlying sensitivity of confidentiality-seeking propensity to this covariate (β) and the sample distribution of all covariates (the sample average of $\phi(\cdot)$).

[Insert Table III here.]

The γ estimate in the tobit model indicates the partial effect of the regressors on the latent variable: $\partial CF_{j,\,q}^{*} / \partial InstChar_{j,\,q}$, which is not usually of interest. Instead, the more meaningful APE concerns the effect of the regressors on the actual choice of confidential holdings, that is, $\partial CF_{j,\,q} / \partial InstChar_{j,\,q}$, which could be expressed as follows:

$$
APE = E\left(\frac{\partial CF_{j,q}}{\partial InstChar_{j,q}} \mid InstChar_{j,\,q}, \lambda_{q} \right) = \gamma \, E\left[\Phi\left(\frac{\gamma \, InstChar_{j,q} + \lambda_{q}}{\sigma_{\varpi}} \right) \right],
\tag{5}
$$

where $\Phi(\cdot)$ is the cumulative probability function of the standard normal distribution. The empirical analogue to (5) is readily available:

$$\widehat{APE} = \hat{\gamma}\, \frac{1}{n} \sum_{j,q} \Phi\left(\frac{\hat{\gamma}\, InstChar_{j,q} + \hat{\lambda}_q}{\hat{\sigma}_{\varpi}} \right) \tag{6}$$

Table III uses two sets of *InstChar* variables. The first set includes dummy variable for the broad type of institutions, namely banks and insurance companies, hedge funds, investment companies/advisors, and others. The group of banks and insurance companies serves as the omitted category in the regressions.

It is worth noting that the classification of institution types employed in this paper is quite different from that used in the Thomson Reuters database. Thomson Reuters divides all institutions into five types: banks (type code = 1, narrowly defined as financial institutions that accept and manage deposits and make loans, or loosely "commercial banks"), insurance companies (type code = 2), investment companies (type code = 3, mostly mutual fund management companies), independent investment advisors (type code = 4, including asset management companies, investment banks, brokers, private wealth management companies, etc.), and others (type code = 5, including pension funds, endowment funds, most of the hedge funds, financial arms of corporations, and others). The type code 5, especially since 1998, is known to be problematic in that the category could include many misclassified institutions that should be assigned with the other type codes (mostly, type code 4).[26] As a result, the "other" category, instead of being a residual claimant, turns out to be the largest category in the Thomson database, accounting for over 50% of all institutions.

We made the following changes to the Thomson classification of institutional categories. We first divide all institutions into four groups: (i) banks and insurance companies (a combination of type 1 and type 2 institutions by the Thomson classification), (ii) hedge funds (the classification of which will follow), (iii) investment companies and investment advisors (a combination of type 3 and type 4 institutions by the Thomson classification, excluding hedge funds) and (iv) other institutions. The

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[26] The data manual of the Thomson Reuters database acknowledges this issue with the classification.

categories of hedge funds and investment management companies/advisors will be the subjects of our key interests. For institutions in our sample that are not covered by Thomson, we manually classify them.

Next, we made major corrections for the "other" category as classified by Thomson. First, we reassign all hedge funds from this category. Second, we reassign an institution which has type code 5 after 1997 to an earlier code, if available and if different from 5. Third, we manually classify the remaining institutions (mainly based on information from the institutions' websites and news articles) and reassign all investment companies and advisors. After all these corrections, the "other" category shrinks sharply to about 4% of all institutions in our sample.

Hedge funds are classified by manually identifying hedge fund management companies from all 13F-filing institutions. A hedge fund management company is defined as an institutional investor that has major hedge fund business according to the information revealed from a wide range of sources, including the institution's own websites and SEC filings, industry directories and publications, and news article searches. The full list of 13F-filing hedge funds is obtained from Agarwal, Fos, and Jiang (2009) which provides a detailed description for the classification criteria. There are 950 unique hedge funds in our sample of which 104 have engaged in confidential filing, making hedge funds the leading group of confidential filers in our sample. Due to our top-down classification approach, our list of 13F filing hedge funds companies is considerably longer than used in prior literature.[27]

The second set of *InstChar* variables consist of continuous variables mostly constructed based on 13F quarterly holdings. These variables capture the degree of active portfolio management or the market impact of the institutions. More specifically, *Age* is the number of years since the institution's first appearance on Thomson Reuters. *PortSize* is the total equity portfolio size of an institution calculated as the market value of its quarter-end holdings. *Turnover* is the inter-quarter portfolio turnover rate, calculated as the lesser of purchases and sales divided by the average portfolio size of the last and the current quarter.[28] *PortHHI* is the Herfindahl index of the portfolio, calculated from the market value of

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[27] Relying on a one-sided match from published hedge fund lists to the 13F database, Brunnermeier and Nagel (2004) study the holdings of 53 hedge fund companies, and Griffin and Xu's (2009) sample contain 306 such firms.
[28] Purchases (sales) are calculated as the sum of the products of positive (negative) changes in the number of shares in the holdings from the previous to the current quarter-end and the average of the stocks prices at the two quarter-

each component stock. *PortRet* and *PortVol* are the monthly average return and volatility on the portfolio during the quarter, assuming that the institution maintains the holdings of the last quarter-end. *Flow* is defined as the change in total portfolio value between two consecutive quarters, net of the change due to returns, and expressed as a percentage of the portfolio size at the previous quarter-end. That is,

$$Flow_{j,q} = \frac{PortSize_{j,q} - PortSize_{j,q-1}(1 + PortRet_{j,q})}{PortSize_{j,q-1}}. \tag{7}$$

Flow measures the change in the value an institution's equity portfolio due to changes in investment (and not due to appreciation of the stock prices), and is a proxy for the fund inflows that the institution receives.

Finally *BetaMkt, BetaSMB, BetaHML,* and *BetaMom* are the loadings on the Fama-French three factors (market, size, book-to-market) and the momentum factor using imputed monthly returns for the 36-month period ending in the current quarter, assuming that the institution always maintains the most recent past quarter-end holdings.

The Columns (1) and (3) of Table III indicates that hedge funds are the most frequent users of confidential filings. Compared to the omitted category of banks/insurance companies, the probability that a hedge fund seeks confidentiality is 3.0 percentage points higher, and the proportion of confidential holdings in the total portfolio is 1.5 percentage points higher. Both figures are statistically and economically significant (relative to the all-sample average probability of 1.9% and unconditional average proportion of 0.82%). Investment companies and advisors are also frequent confidential filers, but their marginal effects are less than half of those of the hedge funds.

Columns (2) and (4) relate confidential filing to a more detailed set of institutional characteristics variables. We find that the following characteristics are significantly associated with more frequent confidential filings. First is portfolio size (*PortSize*), consistent with larger institutions bearing higher market impact and maybe having larger capacity in collecting private information. Second, several characteristics proxying for active portfolio management are uniformly associated with more confidential

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ends. The logic of using the *lesser* (rather than the average) of purchases and sales is to free the measure from the impact of net flows—a practice used in mutual fund research (e.g., by Morningstar) in defining portfolio turnover rates.

filings. They include high portfolio turnover rate (*Turnover*), high portfolio concentration as measured by the Herfindahl index (*PortHHI*), [29] and high portfolio return volatility (*PortVol*).

Interestingly, institutions that seek confidential treatment more often and that have larger portion of their portfolio masked from their original filings are the ones whose equity portfolios exhibit significantly lower loadings on the market (*BetaMkt*) and the momentum (*BetaMom*) factors. Combining higher portfolio return volatility and lower factor loadings, we can conclude that these institutions manage portfolios that have higher idiosyncratic risk (or low R-squared with respect to the market and common factors). We argue that such a pattern is supportive of private information and active portfolio management. First, a recent paper by Titman and Tiu (2009) find that better hedge funds (in terms of Sharpe ratios, information ratios, and fund inflows) exhibit lower R-squared values with respect to systematic factors. Second, given the additivity of idiosyncratic risk, an equity long portfolio with high idiosyncratic risks necessarily over-weights stocks with high idiosyncratic variations. Such stocks are shown by the literature (Durnev, Morck, Yeung, and Zarowin (2003) and Durnev, Morck, Yeung (2004)) as having a higher ratio of private, firm-specific information to noise, and carrying more information that gets impounded into the price through informed trading (Chen, Goldstein, and Jiang (2006)). Finally, this pattern is related to Agarwal, Fos, and Jiang's (2009) finding that hedge funds which choose not to report to any commercial databases have significantly lower factor loadings compared to funds that do. Both their findings and ours indicate that institutional investors who adopt less conventional investment strategies value privacy more—they are more likely to refrain from voluntary disclosures or to seek exemptions from mandatory ones.

B. Stock Characteristics and Confidential Holdings

The next question in line is what types of stocks are more likely to be included in confidential holdings. If the primary purpose of confidential filing is to conceal private information, then stocks in such holdings are likely to be associated with information-sensitive events (such as M&As), more opaque

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[29] Kacperczyk, Sialm, and Zheng (2005) show that more concentrated mutual funds may possess informational advantages in certain industries. Our results provide further evidence for institutions with greater portfolio concentration seeking confidentiality to protect their informational advantage and potentially benefit from it.

and subject to more information asymmetry among investors compared to stocks that are revealed in the regular quarterly filings.

In the SEC guideline for amendment to 13F filings, "open risk arbitrage" and "block positioning" are allowable reasons for the delay in disclosure. The event that best exemplifies both motives is merger and acquisition. An M&A arbitrage is usually made upon an announced attempt of acquisition after which the risk arbitrageurs bet on the completion of the deal and the convergence of the price to the bidding price. Therefore, we use the indicator variable (*M&A*) for a stock that was an M&A target during the one-year period ending in the portfolio quarter as a proxy for the M&A arbitrage motive of the confidential filing.

Data on M&A transactions are retrieved from Securities Data Company (SDC), updated to the end of 2007.[30] A necessary condition for the classification of an M&A transaction is a sufficient change-of-control. For this purpose, we exclude transactions classified as acquisitions of partial stakes, minority squeeze-outs, buybacks, recapitalizations, and exchange offers. We also require that the bidder had a stake below 50% before the transaction and a stake above 50% afterwards. Our final sample has 4,786 deals during the period of 1998-2007.

More generally, we use several variables that are firm-specific drivers of information asymmetry including firm size, liquidity, distress risk, and analyst following. Extant literature indicates that greater information asymmetry is associated with smaller stocks (Chari, Jagannathan, and Ofer (1988), Llorente, Michaely, Saar, and Wang (2002)), illiquid stocks (Glosten and Milgrom (1985), Merton (1987), Diamond and Verrecchia (1991), and Kim and Verrecchia (1994)), lesser analyst following (Brennan and Subrahmanyam (1995), Hong, Lim, and Stein (2000), Chang, Dasgupta, and Hilary (2006)), and higher probability of financial distress (Griffin and Lemmon (2002)).

Market capitalization (*Size*) at the quarter-end is obtained from CRSP. Book-to-market ratios (*B/M*) are recorded at year-end using data from CRSP and COMPUSTAT. We also include the market (CRSP value-weighted) adjusted past 12-month return (*Adj. Past Return*) to control for momentum. We resort to the Amihud (2002) illiquidity measure as the proxy for trading liquidity (*Illiquidity*). The

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[30] This data was obtained from Edmans, Goldstein, and Jiang (2009). We thank the authors for sharing the data.

measure is constructed as the yearly average of the square root of |return|/(price × volume), essentially an empirical analogue to the inverse of Kyle's (1985) lambda, or the inverse of market depth. We measure analyst coverage of a firm by counting the number of analysts in the I/B/E/S database (available through WRDS) that make at least one forecast or recommendation on the firm during the year (*Analysts*).

Finally, probability of financial distress is measured by the distance-to-default (*DtD*), which refers to the number of standard deviation decreases in firm value before it drops to the face value of debt (i.e., the firm is in default). This measure is motivated by Merton's (1974) bond pricing model populated by Moody's KMV, and is now a standard measure for the default risk. We estimate distance-to-default for each firm at each year end following the estimation procedure in Vassalou and Xing (2004). Because *DtD* is a one-sided measure, we use a dummy variable for *DtD* to be smaller than 1.64 as an indicator for non-negligible distress risk (i.e., the estimated probability of distress being 5% or higher).

Panel A of Table IV reports the summary statistics of stock-level variables discussed above, and compares between those included only in the original filings and those only in the confidential filings.[31] For the purpose of comparison, we discard amendment filings which we could not find the original filings for the same institution-quarter pairs. Within the confidential filings, stocks that are part of the ongoing acquisition could be quite different from those of the ongoing disposition. However, the confidential filings do not explicitly state the acquisition/disposition purpose. For practical purpose, we adopt the following algorithm to separate the two. For each stock in a confidential filing, we compare the position (number of shares adjusted for stock splits) to that of the same stock by the same institution at the previous quarter-end, and classify acquisition (disposition) by net increase (decrease). In case of no change (5.4% of the sample), we drop the observation whenever acquisitions and dispositions are separately analyzed.[32] According to this algorithm, 65.0% of the positions in our confidential holdings sample are classified as acquisition motivated while the remainder are dispositions.

[Insert Table IV here.]

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[31] Some stocks appear in both the original and amendment filings of an institution-quarter, where the amendment restates the number of shares in the portfolio. These stocks are not included in this analysis.

[32] This sample of unchanged positions happens to overlap largely with positions in consecutive confidential filings by the same institution. Hence the majority of these positions are included in our sample when they first appear in the first of the series of confidential filings by the same institutions.

It is worth noting that the unit of observation in Table IV is at the institution-quarter-holding level. The sample of stocks in the holdings is very different from the universe of stocks because a stock-quarter observation appears in the sample as many times as it appears in the holdings of all filings institutions. As a result, stocks with high institutional ownership are over-represented in the pooled sample of holdings. Moreover, the sample adopted by this table excludes original filings that are not paired with a confidential filing. We adopt this sample selection criterion in order to facilitate extracting information relating a stock's characteristics to the probability of its being included in a confidential holding when it could have been in the original holdings. Quarterly dummies are incorporated in all specifications of Table IV.

Panel A of Table IV shows that stocks in acquisition-motivated confidential holdings are smaller, have higher book-to-market, lower trading liquidity, lower analyst coverage, higher distress risk, and higher momentum, compared to the stocks in the original filings. Differences along these dimensions are statistically significant at the 10% or less level and generally point towards greater information asymmetry in the confidential holdings. Moreover, stocks in confidential holdings are far more likely to have been recent targets in M&A announcements, a probability of 10.5% versus 3.2% for the original filings, suggesting that M&A risk arbitrage is an important motive underlying confidential treatment. The example of Stark Onshore Management LLC tabulated in Table I represents a more extreme example where 39 (70.9%) out of these 55 holdings were targets in M&A transactions during the year ending in the portfolio quarter.

The disposition-motivated confidential holdings demonstrate some contrasts compared to their acquisition-motivated counterparts. They are no smaller in market-cap, no less liquid, and have no less analyst coverage than holdings in the original filings. On the other hand, the disposition-related confidential holdings also have higher distress risk and a higher-than-normal probability involving stocks that were M&A targets, but the incremental probability of M&A stocks is less than one-quarter the level of the acquisition-related confidential holdings. Overall, the evidence is much weaker that disposition-related confidential holdings are motivated by private information.

In addition to the univariate analyses, we explore the same issue using multivariate logistic

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regressions. The model specification is as follows:

$$CH_{i,j,q} = (\lambda\, StockChar_{i,q} + \alpha_q + \delta_{Ind} + \varepsilon_{i,j,q} > 0), \tag{8}$$

where $CH_{i,j,q}$ is a dummy variable equal to one if stock i is in the confidential holdings of institution j in quarter q. The all-sample average of $CH_{i,j,q}$ is 6.6% (2.6%) for the acquisition- (disposition-) motivated sample. $StockChar_{i,q}$ is the same vector of stock characteristics variables used in Panel A of Table IV. All standard errors in these regressions are adjusted for heteroskedasticity and clustering at the stock level. In addition to the quarterly dummies (α_q), the Fama-French 10 industry dummies (δ_{Ind}) are added to regression (8) to control for unobserved heterogeneity at the industry level. Results without the industry dummies are qualitatively similar and marginally stronger.

Reported in Table IV Panel B are the estimated coefficients $\hat{\lambda}$, their associated t-statistics, and the average partial effects (APE) of the $StockChar_{i,q}$ variables. More specifically, the APEs are computed as the empirical analogue to $E\left[\partial \Pr\left(CH_{i,j,q}=1\right)/\partial StockChar_{i,q} \mid StockChar_{i,q}\right]$:

$$
\begin{aligned}
\widehat{APE} &= \hat{\lambda}\,\frac{1}{n}\sum_{i,j,q} \Lambda\left(\hat{\lambda}\, StockChar_{i,q} + \hat{\alpha}_q + \hat{\delta}_{Ind}\right)\left[1 - \Lambda\left(\hat{\lambda}\, StockChar_{i,q} + \hat{\alpha}_q + \hat{\delta}_{Ind}\right)\right] \\
&= \hat{\lambda}\,\frac{1}{n}\sum_{i,j,q} \frac{\exp\left(\hat{\lambda}\, StockChar_{i,q} + \hat{\alpha}_q + \hat{\delta}_{Ind}\right)}{\left[1 + \exp\left(\hat{\lambda}\, StockChar_{i,q} + \hat{\alpha}_q + \hat{\delta}_{Ind}\right)\right]^2},
\end{aligned}
\tag{9}
$$

where $\Lambda(\cdot)$ is the cumulative probability function for logistic distribution.

Again, the sample for regression (8) includes only holdings in paired original-confidential filings. Using the full sample (including positions of original filings without paired confidential filings) would also yields consistent results, but the power of the test would be lower due to the large number of observations with very little information content because most of the unpaired original filings are made by the great majority (more than 90%) of institutions that have never resorted to confidentiality. [33]

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[33] In general, a discrete response regression model suffers from low power if the unconditional probability of a positive response is miniscule (as would be the case if we use the full sample). In such cases, "choice-based sampling" such as eliminating observations that have a zero probability to have a positive response (such as holdings of institutions that never resort to confidential filing) can increase the power of the test by increasing the average

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Moreover, a logistic regression has the desirable feature that all of its slope coefficients (but not the intercept) have the same probability limit as those using the full sample, but the former are more efficient estimates.

Results from multivariate logistic regressions, as reported in Table IV Panel B, provide messages consistent to those from Panel A. Because *Size*, *Analyst*, and *Illiquidity* have high pairwise correlations (with absolute values above 0.60), we try specifications that have only one of the three at a time, as well as having all three in one regression. Overall, acquisition-motivated confidential holdings are strongly associated with characteristics that proxy for higher level of information, while the same relation is much weakened for disposition-motivated confidential holdings. Moreover, confidential holdings include stocks that are both past winners and losers conditional on other characteristics, but with a clear dichotomy: while high past returns significantly increase the probability of a stock being included in the acquisition-related confidential holdings, the opposite is true for disposition-related ones.

IV. Performance of portfolios of confidential filings

Having examined the determinants of confidential holdings and shown that such holdings seemed to be motivated by private information or perception of private information; it is natural to ask whether confidential holdings are associated with superior returns ex post.

A. Choice of Performance Measure

The default performance measure adopted in this paper is the Daniel, Grinblatt, Titman, and Wermers (1997) holdings-based measure (henceforth the "DGTW measure" or "DGTW benchmark-adjusted return"). More specifically, we form 125 portfolios, in June of each year, using all the common stocks listed on NYSE, AMEX and NASDAQ based on a three way quintile sorting along the size (NYSE size-quintile), book-market ratio, and momentum dimensions. The daily DGTW benchmark return for each portfolio is the value-weighted return of all the component stocks. Finally, the abnormal

information content of the kept observations, Please see Manski and McFadden (1981) for a general discussion of the approach.

performance of a given stock is its return in excess of that of the benchmark portfolio it belongs.

The choice of the performance measure reflects the focus on superior returns associated with stock picking. According to Daniel, Grinblatt, Titman, and Wermers (1997), the superior performance of a money manager can be decomposed into three components: stock selectivity, style timing, and execution costs. Given that applications for confidential treatment need to be made at the individual stock level, the justifiable private information should be stock-specific rather than about asset classes or overall market timing. Further, our analyses are based on holdings that do not incorporate transaction costs. Therefore, we use the DGTW measure which corresponds to the stock characteristic selectivity component. Sensitivity analysis that uses the alternative multifactor alpha measure yields qualitatively similar results.

A.   Comparing Return Performance of Confidential and Original Holdings

We first compare the DGTW benchmark-adjusted returns of confidential (separately for acquisition- and disposition-motivated) and original holdings at the institution-quarter level. This procedure includes all paired original and confidential filings in the sample and entails four steps. First, we separate all stocks in each confidential filing into acquisition- and disposition-motivated holdings. Second, we compute the DGTW measure for each stock in each group (original holdings, confidential holdings—acquisition, and confidential holdings—disposition). Third, we compute both the value-weighted (Panel A of Table V) and equal-weighted (Panel B of Table V) average performance of portfolios of each group. Market values of portfolio holdings are used as the weights to compute value-weighted returns. As a result, there are up to three portfolios for each institution-quarter. Finally, we average, over all original and all acquisition- and disposition-motivated confidential portfolios, their DGTW measures at different return horizons ranging from one to 12 months from the quarter-end portfolio date. A 45-day horizon is added to reflect the normal delay allowed for the regular 13F filings.[34]

[Insert Table V here.]

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[34] Since the confidential holdings are filed with 45-day delay, our focus is on the abnormal performance beyond that horizon. However, for the sake of completeness, we also report the figures for shorter horizons of 1 month and 45 days.

We conduct two-sample mean difference t-tests that compare the performance of the original portfolios with the two types (acquisition and disposition) of confidential portfolios. The differences adjust for the quarterly fixed effects, and the t-statistics are based on standard errors that are robust to heteroskedasticity as well as clustering at the institution level.

Results in Table V provide evidence that acquisition-motivated confidential holdings exhibit higher risk-adjusted returns compared to original holdings. The pairwise differences are positive for the first six months, and are statistically significant at the 5% (10%) or less level for the first three (four) months. Using the value-weighted numbers, the difference peaks at 1.09% in two months (t-statistics = 3.44), equivalent to an annualized return spread of 6.54%. Therefore, positions that institutions accumulate and choose to hide in confidential holdings seem to be more informed than the average holdings in the same institutions' overall portfolio, but the return spread peaks quickly, implying that the private information is short-lived.

In contrast, the disposition-motivated confidential holdings do not exhibit any abnormal returns over the original holdings at any time horizon. If institutions sell stocks based on superior information and hide such selling using confidential filings, the superior information should manifest itself in significant negative abnormal returns of these stocks after the quarter end. This is not the case, indicating that confidential holdings related to on-going dispositions are more likely to be motivated by liquidity, rather than by private information. In such cases, confidential filings may still benefit the institutions in mitigating the adverse price impact that might ensue had the institution carried out the disposition in the open.

In untabulated analyses, we conduct two sensitivity checks. First, we repeat the calculation in Table V but separately for the subsample of confidential filings that result from SEC approvals of the confidential treatment and those responding to SEC denials. Interestingly, the abnormal returns on the two subsamples are statistically indistinguishable for all time horizons considered. The lack of difference indicates that institutions' ability or willingness to provide adequate factual support for their confidential holdings is not indicative of the quality of their private information, neither is the SEC's judgment on whether an application for confidentiality merits approval.

Second, we replicate the analyses in Table V using the daily four-factor alpha (Carhart (1997)) as the return performance measure. The resulting abnormal performance is comparable to that reported in Table V using the DGTW measure. The value-weighted average daily alpha of the acquisition-motivated confidential holdings peaks at 1.7 basis points at the three-month horizon (equivalent to an annualized spread of 4.28%), significant at the 1% level. Moreover, the daily alpha measure remains strong and significant (at the 5% level) at 1.1 basis points at the one-year horizon. Consistent with the results in Table V, no significant performance is detectable for the disposition subsample using the alpha measure.

B. Abnormal Returns of Confidential Holdings: Cross-Sectional Evidence

We next decompose the risk-adjusted performance of confidential holdings by both filing and institution characteristics. For expositional convenience, we henceforth report the results for only the value-weighted case as both value-weighted and equally-weighted portfolios yield qualitatively similar findings. In most cases, the value-weighted scheme produces slightly stronger results (as shown in Table V). Based on the results in Tables IV and V and discussions in the previous sections, we focus on acquisition-motivated confidential holdings only.

First, we group institutions by their types as defined in Table III and conduct the following regression:

$$DGTW_{i,j,t} = \beta_1 (j = Conf) \cdot InstType_i + \beta_2 (j = Orig) \cdot InstType_i + \lambda_t + \varepsilon_{i,j,t} . \qquad (10)$$

In (10), the dependent variable, $DGTW_{i,j,t}$, is the equally-weighted DGTW benchmark-adjusted return of the quarterly portfolios of institutions i of filing type j in quarter t. Filing type j takes two values: $j=Conf$ indicates that the filing is confidential and $j = Orig$ indicates original filing. $InstType_i$ is a vector of institution types as defined in Table III. The interaction of filing type and institution type yields eight dummy variables: The original and confidential filings by banks and insurance companies (*BKORIG* and *BKCONF*); those of hedge funds (*HFORIG*, *HFCONF*), of investment companies/advisors (*INVORIG*, *INVCONF*), and of other institutions (*OTHORIG*, *OTHCONF*). In the regression, we designate *BKORIG* as the omitted category. Finally, λ_t is the quarterly dummy variable. All standard errors are robust to

heteroskedasticity and are clustered at the filing institution level. Results are reported in the Panel A of Table VI.

[Insert Table VI here.]

Panel A shows that the institution-filing categories exhibiting the highest abnormal returns are from the confidential holdings of hedge funds (*HFCONF*) and investment companies/advisors (*INVCONF*). The differences relative to the omitted category are significant for different horizons up to 9 months after the quarter-end portfolio date with the differences peaking at 1.85% for hedge funds at the 3-month horizon and 1.48% for investment companies at the 4-month horizon. Moreover, the original holdings of these two groups of institutions also exhibit significant abnormal returns relative to the omitted category for most horizons up to a year. It is perhaps a puzzle that the confidential holdings of the bank/insurance company group have worse (albeit insignificant) performance relative to its own original holdings for most of the time horizons up to a year.

Panel B of Table VI reports two-sample t-tests on the comparison of original versus confidential holdings within each type of institutions and the pair-wise comparison of confidential holdings of different types of institutions. We also group hedge funds and investment companies/advisors to form a broader category of institutions that specialize in asset management. Our results show that, as measured by value-weighted portfolio returns, the acquisition-based confidential holdings of hedge funds and investment companies/advisors together outperform their original holdings for all horizons up to 4 months. This outperformance is economically significant. For example, the confidential holdings outperform by 1.06% (significant at the 1% level) at two-month horizon after the quarter-end portfolio date, equivalent to an annualized return spread of 6.36%. The tests confirm that the confidential holdings of asset-management-oriented institutions have superior returns relative to their own original holdings, and relative to the confidential holdings of banks, insurance companies, and other institutions.[35]

Second, we explore the cross-sectional variation in the abnormal returns of confidential holdings at the stock-quarter level, where the stock characteristics variables are the same as used in Table IV.

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[35] The "Other" category exhibits volatile results that lack any pattern. This is mostly due to the small sample size: This category accounts for less than 5% of all institutions and about 6% of all confidential filings.

Results are reported in Table VII. We find that stocks—conditional on being in confidential holdings—with relatively high trading liquidity, high analyst coverage, low financial distress risk, and high book-to-market ratio are associated with higher abnormal returns over most horizons from one month to one year. In addition, lower market capitalization and past returns are associated with higher abnormal returns in the short time horizon (within four months). Interestingly, these characteristics, according to Table IV, would unconditionally make a stock an unlikely candidate to be included in confidential holdings. The contrast suggests that if a stock is *a priori* unlikely to be sought for confidential treatment, then there needs to be stronger reasons (private information) for the stock to be part of the confidential holdings, and hence higher abnormal returns conditional on being included in confidential treatment.

[Insert Table VII here.]

C. Discussion of Abnormal Returns

Tables V to VII collectively show that abnormal performance of confidential holdings of asset-management-oriented institutions (i.e., hedge funds and investment companies/advisors) is significantly better than that of their own original holdings and that of other institutions. Moreover, the economic magnitude of the abnormal returns is also significant with the acquisition-motivated confidential holdings outperforming by 1.06%, 1.30%, and 1.11% over two-month, three-month, and four-month horizons, which are equivalent to annualized returns ranging from 3.3% to 6.4%. In this section we discuss the results in the context of the large literature on return performance of portfolio managers and institutional investors, and relate abnormal returns to the motives of confidential filings.

First, our results show that a selective subset of institutional investors' portfolios does embody superior information although the literature has shown a general lack of economically significant and persistent abnormal performance among active portfolio managers as a whole. French (2008) shows that the typical investor in an actively managed portfolio underperforms the market by 67 basis points during 1980-2006. Yet the great majority of the assets are in the hands of active rather than passive (indexed)

strategies.[36] A large number of portfolio managers believe (or make believe) that they have superior information to justify active management, but in equilibrium their perceived private information cannot all materialize in superior returns because the aggregate performance of active managers can only be at par with the market before fees. As a comparison, we are able to identify a small subset of actively managed portfolios that are most likely to contain private information and that indeed exhibit superior performance. It is still possible that institutional investors perceive themselves as possessing more superior information than truth (over-confidence might be one explanation for the inconsistent belief). They may seek confidential treatment more frequently or for a larger collection of stocks than are warranted by genuinely valuable information. The aggregate abnormal performance of confidential holdings that we document is likely to include this type as well.

Second, it is important to note that some of the motives underlying confidentiality are not necessarily related to superior information or return prediction. For example, an institution may choose to hide an on-going acquisition or disposition that is liquidity motivated so as to avoid being front run upon. In such cases, the counter-factual (that is, returns in the absence of confidentiality) could be negative rather than zero on average. Moreover, stock characteristics associated with low trading liquidity tend to overlap with those capturing information asymmetry. And the liquidity story is also broadly consistent with results in Table IV. Plausibly, disposition is more likely to be liquidity-driven than acquisitions, which explains the lower abnormal returns of disposition-motivated confidential holdings relative to the acquisition-motivated (see Table V). Another reason for seeking confidentiality by some institutions could be to hide "losers" as a more cost effective way of "window dressing" compared to trading ahead of the quarter end. The significantly negative coefficient on *Adj. Past Return* in the disposition subsample reported in Table IV Panel B is consistent with this story. This motive does not have a clear prediction on the abnormal performance of the hidden positions, and the inclusion of these filings biases down the abnormal returns of confidential filings that are information driven. In light of these possibilities that do not predict superior abnormal performance for confidential holdings, our findings could be viewed as a

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[36] Aggregate statistics are hard to obtain, however, the numbers from the mutual fund sector are informative. According to the CRSP Mutual Funds database, index funds account for 4.5% of all mutual funds, and manage 15.5% of all assets in 2006.

lower bound estimate for the abnormal return of the part of confidential holdings that are information-driven.

Third, some institutions may seek confidentiality in order to prevent an investment strategy from being "reverse engineered" or to confuse potential copycats (such as the cases of Berkshire Hathaway and D. E. Shaw illustrated in the Introduction and Section I). In other words, the motive behind some confidential filings is to "blur" a trading strategy or an investment pattern rather than to hide specific positions. This is similar to strategic trading by informed traders to avoid revealing private information where some of the trades do not necessarily lead to superior returns on their own (Kyle (1989)). This motivation, if justified, should relate confidentiality seeking to a higher performance of the overall portfolio (including both original and confidential holdings), rather than incremental performance on the part of the confidential holdings.

Finally, the implicit assumption that portfolios are formed right at the quarter-end bias down our return results if the positions are actually accumulated throughout the quarter. However, this stringent assumption is necessary to avoid any look-back bias or attributing superior performance to momentum trading, and is the default method adopted by the literature that analyzes returns using holdings data. Nevertheless, we repeat the analysis in Table V by assuming the beginning of the quarter as the portfolio formation date in order to gain some insights into this possibility. Untabulated results show that the average value-weighted abnormal returns of acquisition-related confidential holdings relative to the original holdings of the same institution-quarter rise to 4.1% (significant at the 1% level) in three months after the quarter-end, which is four times the magnitude documented in Table V. Such a method would also strengthen results in Table VI, where the performance of confidential holdings by hedge funds and investment companies/advisors exceeds that of their original holdings by a larger margin if the quarter beginning is used as the portfolio formation date. The truth is probably somewhere between, but we do not wish to over-interpret the strengthened results given the possible look-back bias for any assumed portfolio formation date other than the quarter-end.

V. Policy Implications and Concluding Remarks

By relegating some of the quarter-end holdings to an amendment 13F filing, an institution could delay the disclosure of such holdings to the public for a significant period of time (usually up to one year). To the extent that institutions resort to confidentiality strategically, holdings in the confidential filings are likely to contain more private information than those disclosed at regular intervals. Despite their potential importance, the confidential holdings have not been included in the extant research that analyzes quarterly holdings of institutions due to data availability through conventional sources.

This study fills the gap by examining the complete holdings that incorporate information from confidential filings. Our results show that asset management companies, who rely on collecting and process private information in order to deliver superior returns, seek confidentiality more often; their holdings are more likely to be associated with private information and to exhibit superior returns as a result. These findings offer an explanation to the ongoing resistance by investment managers against ownership disclosure.

Our study prompts several implications for the researchers and regulators. First and foremost, we are able to show that more actively managed institutions that may have informational advantages tend to seek confidentiality and are also able to exhibit superior performance in their acquisition-motivated confidential holdings. Hence, ignoring confidential holdings should bias the results for certain types of institutional investors though it may be small if the purpose of the research is to track aggregate institutional ownership in public companies or to assess the overall portfolio performance of any large sample of institutional investors. Furthermore, given the importance of confidential holdings conditional on a confidential filing (on average 27.3% of the total value of an institution-quarter portfolio as shown in Table II Panel B), their disproportionate association with information sensitive events (such as M&As), and their characteristics that point to general information asymmetry, ignoring confidential holdings could be a significant omission in analyzing position changes of individual institutions or in response to specific events (such as M&A arbitrage).

On the regulation front, our study raises interesting questions regarding the design of ownership disclosure rules that optimally balance between ensuring sufficient transparency and preserving the

incentives for sophisticated investors to collect and benefit from private information. Our findings indicate that confidential treatment, on top of the regular 45-day delay in regular 13F filing, offers adequate relief for institutions who wish to disclose holdings only after a significant delay. The fact that over 90% of the institutions never resort to confidential treatment indicates that the demand for confidentiality is not wide-spread.

On the other hand, the heavy concentration of confidentiality seeking among few institutions (the top ten users account for 40% of all amendment filings) and the high rejection rates among some of the heavy users (such as D. E. Shaw and Caxton) alert the possibility of abuse. At least for some period in our sample period (which was already after the SEC's tightening of the rule in 1998), there seems to be a lack of serious cost for seeking confidential treatment as some institutions repeatedly sought to hide a large portion of their portfolios (rather than a handful of positions). Though properly denied by the SEC for lack of stock-specific factual support, these applications hardly enjoyed less benefit in delayed disclosure compared to the approved cases given the turnaround time of SEC review (see discussion in Section II.A). Such patterns call for attention to refine the rules so as to make the cost and benefit clear and consistent to all players. Finally, cases like Berkshire Hathaway's confidential filing of its Wells Fargo position in 1987 (see discussion in Section I) highlight another subtle balance between protecting some institutions' legitimate private information and preventing them from misleading the investor public by withholding material information.

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Figure 1
Time Series of the Numbers of Original and Confidential 13F Filings

This figure shows the quarterly time series of the number of the original filings (scaled to the left axis), that of the amendment 13F filings and those with approved confidential treatment (scaled to the right axis) in our final sample. Section II.A provided a detailed description of the construction of the sample.
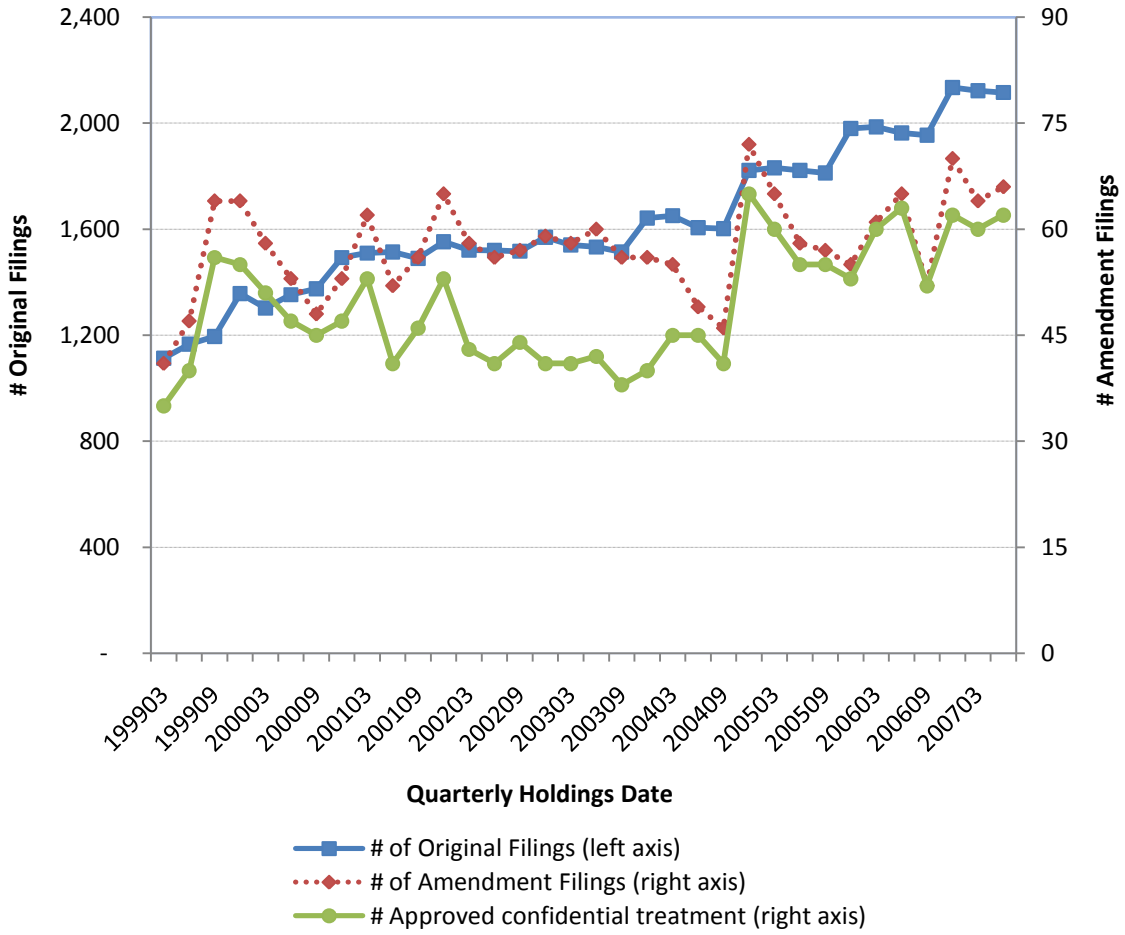
Table I
Confidential Holdings of Stark Onshore Management LLC

This table lists all the common stock confidential holdings reported in the 13F amendments filed by Stark Onshore Management LLC over the sample period 1999Q1-2007Q2. A confidential holding is defined as a position in an amendment filing that was unreported in the corresponding original 13F filing, or that was reported in the original filing with a different number of shares. "Issuer Name" is the name of the company issuing the common stock. "Shares" is the number of shares held by Stark Onshore on the portfolio date. "Portfolio Date" is the quarter-end date for which the portfolio holdings are reported. "Filing Date" is the date when the 13F amendment is filed. "Thomson Reuters" is an indicator variable for whether the holding is reported to the Thomson Reuters Ownership Database. "M&A Target" is an indicator variable for whether the issuer company was a target for merger and acquisition during four-quarter period ending in the portfolio quarter.

Issuer Name	CUSIP	Shares	Portfolio Date	Filing Date	Thomson Reuters	M&A Target
Anthem Inc	94973V10	67,360	9/30/2004	2/14/2005	No	No
Cox Communications Inc	22404410	269,964	9/30/2004	2/14/2005	No	No
Metro-Goldwyn-Mayer Inc	59161010	60,000	9/30/2004	2/14/2005	No	Yes
Sears Holdings	81238710	390,800	12/31/2004	5/13/2005	No	Yes
Symantec Corp	87150310	161,650	12/31/2004	8/16/2005	No	No
Gold Fields Ltd	38059T10	73,277	3/31/2005	8/16/2005	No	No
Symantec Corp	87150310	161,650	3/31/2005	8/16/2005	No	No
Sungard Data Systems	86736310	1,557,250	3/31/2005	9/27/2005	No	Yes
Unocal Corp	91528910	393,650	3/31/2005	9/27/2005	No	No
MCI Communications Corp	55269110	2,103,850	3/31/2005	2/15/2006	No	Yes
Sungard Data Systems	86736310	1,557,250	6/30/2005	9/27/2005	No	Yes
Unocal Corp	91528910	393,650	6/30/2005	9/27/2005	No	Yes
Brookstone Inc	11453710	98,463	6/30/2005	10/7/2005	No	Yes
Infousa Inc New Com	45670G10	221,542	6/30/2005	10/7/2005	No	Yes
Metals Usa Inc	59132420	183,275	6/30/2005	10/7/2005	No	Yes
Cablevision Systems Corp	12686C10	281,250	6/30/2005	1/6/2006	No	Yes
Medicis Pharmaceutical	58469030	13,750	6/30/2005	1/6/2006	No	No
AT&T Corp	00195750	6,250	6/30/2005	2/15/2006	No	Yes
MCI Communications Corp	55269110	1,119,450	6/30/2005	2/15/2006	No	Yes
Gold Banc Corp Inc	37990710	555,203	9/30/2005	12/15/2005	No	No
AT&T Corp	00195750	6,250	9/30/2005	2/15/2006	No	Yes
Bei Technologies Inc	05538P10	46,200	9/30/2005	2/15/2006	No	Yes
Cablevision Systems Corp	12686C10	281,250	9/30/2005	2/15/2006	No	Yes
Chiron Corp	17004010	506,040	9/30/2005	2/15/2006	No	Yes
Hibernia Corp	42865610	525,000	9/30/2005	2/15/2006	No	Yes
MCI Communications Corp	55269110	1,119,450	9/30/2005	2/15/2006	No	Yes

Issuer Name	CUSIP	Shares	Portfolio Date	Filing Date	Thomson Reuters	M&A Target
Medicis Pharmaceutical	58469030	13,750	9/30/2005	2/15/2006	No	No
Metals Usa Inc	59132420	185,775	9/30/2005	2/15/2006	No	Yes
Petrokazakhstan Inc	71649P10	93,750	9/30/2005	2/15/2006	No	No
Guidant Corporation	40169810	61,650	9/30/2005	5/19/2006	No	Yes
Boston Scientific Corp	10113710	506,250	12/31/2005	5/19/2006	No	No
Guidant Corporation	40169810	397,011	12/31/2005	5/19/2006	No	Yes
Ipayment, Inc	46262E10	26,360	12/31/2005	5/19/2006	No	Yes
Independence Comm. Bank Corp	45341410	373,797	12/31/2005	6/5/2006	No	Yes
Albertson's Inc	01310410	392,240	3/31/2006	6/5/2006	No	Yes
Independence Comm. Bank Corp	45341410	13,677	3/31/2006	6/5/2006	No	Yes
Education Management Corp	28139T10	411,591	3/31/2006	8/15/2006	No	Yes
Thomas Nelson	64037610	75,360	3/31/2006	8/15/2006	No	Yes
Capital One Financial	14040H10	110,000	3/31/2006	11/20/2006	No	No
Engelhard Corp	29284510	72,800	3/31/2006	11/20/2006	No	Yes
Keyspan Corp	14040H10	396,780	3/31/2006	2/20/2007	No	Yes
Capital One Financial	14040H10	145,000	6/30/2006	11/20/2006	No	No
Commercial Capital Bancorp, Inc	20162L10	443,073	6/30/2006	11/20/2006	No	Yes
Exelon Corp	30161N10	783,500	6/30/2006	11/20/2006	No	No
Fisher Scientific Intl	33803220	116,080	6/30/2006	11/20/2006	No	Yes
Kinder Morgan Inc	49455P10	202,340	6/30/2006	11/20/2006	No	Yes
Nco Group Inc	62885810	407,999	6/30/2006	11/20/2006	No	Yes
Public Service Enterprise Group	74457310	730,774	6/30/2006	11/20/2006	No	No
Keyspan Corp	49337W10	540,040	6/30/2006	2/20/2007	No	Yes
Longview Fibre Co	54321310	40,000	6/30/2006	2/20/2007	No	Yes
Constellation Energy Group Inc	21037110	648,660	6/30/2006	5/3/2007	No	Yes
Northwestern Corp	66807430	175,832	6/30/2006	5/3/2007	No	Yes
Univision Communications Inc	91490610	1,298,435	6/30/2006	5/3/2007	No	Yes
Multi Fineline Electronix In	62541B10	933,653	3/31/2007	5/16/2007	No	No
Rouse Co	77927310	269,910	9/30/2004	11/25/2004	Yes	Yes

Table II
Summary Statistics of 13F Original and Confidential Filings

Panel A of the table reports the distribution of the delay (in number of days) between the quarter-end portfolio date and the filing date for all original and confidential 13F filings (the "preliminary sample"). In Panel B, we use the "final sample" that excludes observations with extreme delays, i.e., more than 180 days for the original filings, and confidential filings with less than 45-day or more than 1,505-day (4 years plus 45 days) delay. Panel B summarizes the number of filings, the number of institutions, the dollar value, the number of stocks, and the average stock ownership share in the final sample. The types of institutions (Bank and Insurance, Hedge Fund, Investment Company/Advisor, and Other) are defined in Section III.A. The statistics for the two types of holdings are reported separately, and those of the confidential holdings are compared to the combined portfolio of the confidential filings and their corresponding original holdings. Panel C reports the number of confidential filings and percent of rejected filings of the top ten institutions that seek confidential treatment and the top ten institutions that are most frequently denied of their requests for confidential treatment. The institution types "HF" and "INVCO" are abbreviations of "Hedge Fund" and "Investment Company/Advisor".

Panel A: Delay Period between Portfolio Date and Filing Date

Original 13F Filings									Total
Delay (days)	0-30	31-45	46-60	61-180	> 180				
Number	12,694	34,885	5,640	1261	705				55,185
Percent	23.00%	63.21%	10.22%	2.29%	1.28%				
Confidential 13F Filings									
Delay (days)	0-30	31-45	46-60	61-180	181-410	411-775	776-1505	> 1,505	
Number	34	107	129	518	752	288	103	27	1,958
Percent	1.74%	5.46%	6.59%	26.46%	38.41%	14.71%	5.26%	1.38%	
Total									57,143

Panel B: Summary Statistics of Original and Confidential Holdings by Institution Types

	Institution Type				
	Bank & Insurance	Hedge Fund	Investment Company/ Advisor	Other	Total
Original 13F Filings					
# of institutions	346	950	1,827	123	3,246
# of 13F filings	6,203	14,265	31,749	1,937	54,154
$ million per institution-quarter (Mean)	6,690.0	1,509.2	3,176.4	3,986.6	3,168.7
$ million per institution-quarter (Median)	482.8	258.5	259.7	209.4	274.7
# of stocks per institution-quarter (mean)	411.6	119.9	166.5	264.7	185.8
# of stocks per institution-quarter (median)	176.0	47.0	74.0	69.0	72.0
% of outstanding shares (Mean)	0.53%	1.12%	0.50%	1.03%	0.69%
% of outstanding shares (Median)	0.06%	0.35%	0.10%	0.09%	0.13%
Confidential 13F Filings					
# of institutions	21	104	98	10	233
# of 13F filings	52	779	660	101	1,592
$ million per institution-quarter (Mean)	2,350.0	691.7	779.7	145.9	781.2
% of original filing and conf. filing combined	11.6%	33.1%	19.4%	49.8%	27.3%
$ million per institution-quarter (Median)	30.9	125.7	137.4	82.0	121.9
% of original filing and conf. filing combined	0.1%	24.4%	4.8%	59.8%	12.3%
# of stocks per institution-quarter (mean)	117.9	77.0	60.2	13.0	69.0
% of original filing and conf. filing combined	11.9%	26.3%	14.3%	49.0%	21.8%
# of stocks per institution-quarter (median)	7.0	6.0	11.0	12.0	8.0
% of original filing and conf. filing combined	0.5%	18.3%	3.5%	60.6%	9.4%
% of outstanding shares (Mean)	0.92%	1.13%	1.20%	1.62%	1.17%
% of outstanding shares (Median)	0.39%	0.67%	0.57%	0.63%	0.61%

Panel C: Top Ten Confidential Filers and Top Ten Denied Institutions

Top Ten Confidential Filers	Inst. Type	# Conf. Filings	% Rejected
Chesapeake Partners Management Co.	INVCO	108	6.5%
Mineworkers Pen. Scheme	OTHER	81	0.0%
UBS O'Connor LLC	HF	76	1.3%
Satellite Asset Management	HF	63	9.5%
Berkshire Hathaway Inc	INVCO	62	71.0%
T. Rowe Price Assoc Inc	INVCO	61	6.6%
HBK Investments LP	HF	49	26.5%
Lehman Brothers Inc.	INVCO	49	0.0%
Stark Offshore Management, LLC	HF	40	0.0%
Polygon Investment Partners	HF	39	0.0%
Total		628	75
% of the full sample		39.4%	29.5%

Top Ten Institutions with Denied Confidential Requests	Inst. Type	# Conf. Filings	% Rejected
Berkshire Hathaway Inc	INVCO	62	71.0%
D. E. Shaw & Co., Inc.	HF	17	100.0%
Relational Investors, L.L.C.	HF	22	63.6%
HBK Investments LP	HF	49	26.5%
Staro Asset Management, L.L.C.	HF	34	38.2%
Atlantic Investment Co	INVCO	12	91.7%
SAB Capital Advisors LLC	HF	23	39.1%
Caxton Corporation	HF	9	100.0%
Two Sigma Investments, LLC	HF	10	80.0%
Redsky Partners LLC	HF	8	100.0%
Total		246	146
% of the full sample		15.5%	57.5%

Table III
Determinants of 13F Confidential Holdings—Institution Level

This table reports the results from probit and tobit regressions modelling the determinants of 13F confidential filings at the institution level. In columns (1) and (2), the dependent variable of the probit model is an indicator variable for a filing to be confidential. In columns (3) and (4), the dependent variable of the tobit model is the dollar value of confidential holdings as a percentage of the total dollar value of holdings (both original and confidential) for an institution-quarter. Reported are coefficient estimates, and their t-statistics (in parentheses) and associated average partial effects (APE, in percentage points). The types of institutions (Bank and insurance, hedge fund, investment company/advisor, and other) are defined in Section III.A. In columns (1) and (3), "Banks and insurance companies" serves as the omitted category. "*Log(Age)*" is natural logarithm of the number of years since the institution's first appearance on Thomson Reuters. "*PortSize*" is the total equity portfolio size of an institution calculated as the market value of its quarter-end holdings. "*Turnover*" is the inter-quarter portfolio turnover rate calculated as the lesser of purchases and sales divided by the average portfolio size of the last and the current quarter. "*PortHHI*" is the Herfindahl index of the portfolio, calculated from the market value of each component stock. "*PortRet*" and "*PortVol*" are the monthly average return and volatility on the portfolio during the quarter, assuming that the institution maintains the holdings of the last quarter-end. "*Flow*" is defined as the increase in total portfolio value between two consecutive quarters net of the increase due to returns, expressed as a percentage of the portfolio size at the previous quarter-end. "*BetaMkt*", "*BetaSMB*", "*BetaHML*", and "*BetaMom*" are the loadings on the Fama-French three factors (market, size, book-to-market) and the momentum factor using imputed monthly returns for the 36-month period ending in the current quarter, assuming that the institution always maintains the most recent past quarter-end holdings. Quarterly dummies are incorporated in all regressions. Standard errors are adjusted for heteroskedasticity and clustering at the institution level. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

	Dep. Variable: Indicator for Confidential Filing		Dep. Variable: Percent of Holdings Filed as Confidential	
	(1)	(2)	(3)	(4)
Hedge Fund	0.667***		0.785***	
	(4.25)		(4.35)	
	3.04%		1.52%	
Investment Company/Advisor	0.245		0.308*	
	(1.59)		(1.84)	
	1.12%		0.59%	
Other	0.425		0.531	
	(1.44)		(1.53)	
	1.94%		1.03%	
Log(Age)		-0.085		-0.059
		(-1.19)		(-0.97)
		-0.32%		-0.10%
Log(PortSize)		0.214***		0.167***
		(5.41)		(5.73)
		0.81%		0.29%

	Dep. Variable: Indicator for Confidential Filing		Dep. Variable: Percent of Holdings Filed as Confidential	
	(1)	(2)	(3)	(4)
Turnover		2.494***		2.212***
		(6.28)		(5.90)
		9.39%		3.78%
PortHHI		1.778***		1.559***
		(6.20)		(6.31)
		6.69%		2.66%
PortRet		-0.224		-0.064
		(-0.28)		(-0.09)
		-0.84%		-0.1094%
PortVol		3.869**		3.716**
		(2.26)		(2.40)
		14.56%		6.35%
Flow		0.027		0.030
		(0.85)		(1.10)
		0.10%		0.05%
BetaMkt		-0.285**		-0.272**
		(-2.05)		(-2.07)
		-1.07%		-0.46%
BetaSMB		-0.133		-0.120
		(-0.87)		(-0.91)
		-0.50%		-0.21%
BetaHML		0.094		0.082
		(1.07)		(1.03)
		0.35%		0.14%
BetaMom		-0.409**		-0.339**
		(-2.39)		(-2.24)
		-1.54%		-0.58%
Constant	-2.344***	-3.904***	-2.651***	-3.291***
	(-15.61)	(-10.89)	(-9.81)	(-8.93)
Observations	54371	43902	54371	43902
Pseudo R-squared	0.04	0.14	0.04	0.14

Table IV
Stock Characteristics of the Original and Confidential 13F Holdings

Panel A compares the summary statistics (mean, median, and standard deviation) of the characteristics of stocks in original and confidential 13F holdings. Confidential holdings are classified as acquisition- (disposition-) motivated if the position shows a net increase (decrease) over the previous quarter-end. All variables, unless otherwise specified, are calculated at the fiscal year-end before the portfolio dates. "*Size*" is the quarter-end market capitalization of the stock in millions of dollars. "*B/M*" is the firm's book-to-market ratio. "*Adj. Past Return*" is the stock return during the 12 months prior to the quarter-end portfolio date adjusted by CRSP value-weighted market return. "*Illiquidity*" is the Amihud (2002) illiquidity measure, or the yearly average of the square root of daily |Return|/(Price×Vol). "*Analysts*" is the number of I/B/E/S analysts covering the firm during the year. "*DTD < 1.64*" is the dummy variable for the Merton (1974) and Vassalou and Xing (2004) distance-to-default measure to be smaller than 1.64 (implying a 5% or higher default probability). "*M&A*" is an indicator variable that takes a value of 1 for the stock of the firm that was an M&A target during the four-quarter period ending in the portfolio quarter. The standard errors of the two sample t-tests are adjusted for clustering at stock and quarter level. Panel B reports the results from a logistic regression modelling the determinants of 13F confidential holdings at the stock level. The dependent variable is an indicator variable for a stock to be included in the confidential holdings of an institution-quarter. "*Log(Size)*" is the natural logarithm of "*Size*" and "*Log(Analysts)*" is the natural logarithm of one plus the "*Analysts*" measure defined above. The first (last) four columns examine separately the determinants of acquisition (disposition) -motivated confidential holdings. Each column reports estimated coefficients, their t-statistics (in parentheses), and the average partial effects (APE, in percentage points). Quarterly dummies and Fama-French 10-industry dummies are included in all specifications in Panel B. All standard errors adjust for heteroskedasticity and clustering at the stock level. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

Panel A: Summary Statistics of Stock Characteristics of Original and Confidential Holdings

	Size	B/M	Adj. Past Return	Illiquidity	Analysts	DTD < 1.64	M&A
Original 13F Form Filings							
Mean	7,692.8	0.55	12.9%	0.12	12.31	20.1%	3.2%
Median	1,300.8	0.44	1.5%	0.05	10.00		
Std. Dev.	20,639.9	0.44	64.0%	0.20	10.60	40.0%	17.6%
# obs	370,141	370,132	370,141	368,655	369,528	370,141	370,141
Confidential 13F Form Filings: Acquisition Sample							
Mean	5,510.2	0.60	17.7%	0.16	11.12	27.7%	10.5%
Median	932.8	0.47	5.0%	0.07	8.00		
Std. Dev.	16,299.3	0.51	69.7%	0.25	10.51	44.8%	30.7%
# obs	26,127	26,125	26,127	26,047	26,086	26,127	26,127
Two-sample Tests							
Differences in Mean							
(Acquisition - Original)	−2182.6***	0.05*	4.8%*	0.04*	−1.20**	7.7%***	7.4%***
Clustered t-stat.	(−3.60)	(1.83)	(1.79)	(1.79)	(−2.10)	(2.90)	(5.31)
Confidential 13F Form Filings: Disposition Sample							
Mean	6,949.6	0.59	11.2%	0.10	12.64	25.6%	4.7%
Median	1,162.9	0.47	2.6%	0.06	10.00		
Std. Dev.	20,001.4	0.47	58.0%	0.16	10.88	43.6%	21.2%
# obs	9,906	9,905	9,906	9,872	9,888	9,906	9,906
Two-sample Tests							
Differences in Mean							
(Disposition - Original)	−743.2	0.04***	−1.7%	−0.02	0.32	5.5%***	1.5%***
Clustered t-stat.	(−1.00)	(2.71)	(−0.59)	(−1.45)	(0.59)	(3.08)	(2.95)

Panel B: Determinants of Confidential Holdings – Stock Level

	Acquisition Sample				Disposition Sample			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
M&A	1.526***	1.521***	1.530***	1.530***	0.668***	0.675***	0.672***	0.675***
	(36.51)	(36.40)	(36.55)	(36.54)	(10.71)	(10.75)	(10.76)	(10.77)
	8.65%	8.62%	8.66%	8.66%	1.64%	1.65%	1.65%	1.65%
Log(Size)	-0.105***			-0.092***	-0.015**			-0.087***
	(-21.17)			(-13.97)	(-2.04)			(-8.34)
	-0.59%			-0.52%	-0.04%			-0.21%
Illiquidity		0.502***		0.063		-0.686***		-1.244***
		(15.59)		(1.50)		(-9.13)		(-11.21)
		2.84%		0.36%		-1.68%		-3.05%
Log(Analysts)			-0.106***	-0.021**			0.008	-0.011
			(-14.18)	(-2.26)			(0.68)	(-0.78)
			-0.60%	-0.12%			0.02%	-0.03%
DTD < 1.64	0.065***	0.125***	0.142***	0.065***	0.006	0.068**	0.024	0.015
	(3.76)	(7.27)	(8.26)	(3.80)	(0.22)	(2.33)	(0.83)	(0.51)
	0.37%	0.71%	0.80%	0.37%	0.01%	0.17%	0.06%	0.04%
B/M	-0.016	0.042**	0.069***	-0.019	-0.044	0.052**	-0.023	-0.005
	(-0.92)	(2.41)	(3.97)	(-1.04)	(-1.62)	(1.98)	(-0.86)	(-0.18)
	-0.09%	0.24%	0.39%	-0.11%	-0.11%	0.13%	-0.06%	-0.01%
Adj. Past Return	0.077***	0.032***	0.040***	0.069***	-0.155***	-0.126***	-0.156***	-0.085***
	(7.74)	(3.16)	(3.90)	(6.78)	(-7.56)	(-5.93)	(-7.53)	(-4.04)
	0.44%	0.18%	0.23%	0.39%	-0.38%	-0.31%	-0.38%	-0.21%
Constant	−1.602***	−2.498***	−2.218***	−1.665***	−4.659***	−4.719***	−4.795***	−3.924***
	(−24.22)	(−45.73)	(−39.35)	(−22.57)	(−25.82)	(−26.80)	(−26.94)	(−20.90)
Observations	396257	394691	395603	394691	380037	378517	379406	378517
Unconditional Mean	6.59%	6.60%	6.59%	6.60%	2.61%	2.61%	2.61%	2.61%
Pseudo R-squared	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12

Table V
DGTW Benchmark-Adjusted Returns of Original and Confidential Holdings

This table reports the Daniel, Grinblatt, Titman, and Wermers (1997) (DGTW) benchmark-adjusted returns for original and confidential 13F holdings for return horizons ranging from one month to 12 months from the quarter-end portfolio date. A confidential holding is classified as acquisition-(disposition-) motivated if the position shows a net increase (decrease) over the previous quarter-end. The unit of observation is a portfolio that consists of all the original holdings, all the acquisition-motivated confidential holdings, or all disposition-motivated confidential holdings of an institution-quarter. The DGTW benchmark-adjusted returns are first computed for each stock in each portfolio and then are averaged at the portfolio level using value weights of the portfolio (Panel A) or equal weights (Panel B). For the two-sample mean difference t-tests, standard errors are adjusted for heteroskedasticity and clustering at the institution level, and the quarter dummies are added. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

Panel A: Value-Weighted DGTW Benchmark-Adjusted Returns

	#Obs	Return Horizons								
		1m	45days	2m	3m	4m	5m	6m	9m	12m
Confidential 13F Form Filings: Acquisition Sample										
Confidential Holdings	1,000	0.41%	0.47%	0.96%	1.10%	0.61%	0.74%	0.29%	0.01%	0.25%
Original Holdings	54,144	−0.23%	−0.23%	−0.13%	0.03%	−0.21%	−0.06%	0.09%	0.19%	0.30%
Diff.: Confidential − Original		0.64%***	0.70%**	1.09%***	1.07%***	0.82%*	0.80%	0.20%	−0.18%	−0.05%
Clustered t-stat.		2.95	2.55	3.44	2.87	1.85	1.39	0.34	−0.21	−0.01
Confidential 13F Form Filings: Disposition Sample										
Confidential Holdings	612	−0.73%	−0.20%	0.62%	1.08%	0.28%	0.71%	0.77%	0.84%	0.69%
Original Holdings	54,144	−0.23%	−0.23%	−0.13%	0.03%	−0.21%	−0.06%	0.09%	0.19%	0.30%
Diff.: Confidential − Original		−0.50%	0.03%	0.75%	1.05%	0.49%	0.77%	0.68%	0.65%	0.39%
Clustered t-stat.		−0.82	0.10	0.98	1.36	0.56	0.77	0.65	0.49	0.30

Panel B: Equally-Weighted DGTW Benchmark-Adjusted Returns

	#Obs	Return Horizons								
		1m	45days	2m	3m	4m	5m	6m	9m	12m
Confidential 13F Form Filings: Acquisition Sample										
Confidential Holdings	1,000	0.49%	0.53%	1.04%	0.98%	0.48%	0.61%	0.35%	−0.04%	−0.11%
Original Holdings	54,154	−0.09%	−0.07%	0.10%	0.17%	−0.06%	0.16%	0.26%	0.43%	0.65%
Diff.: Confidential − Original		0.58%***	0.60%**	0.94%***	0.81%**	0.54%	0.45%	0.09%	−0.47%	−0.76%
Clustered t−Stat.		2.77	2.41	3.11	2.26	1.26	0.68	0.08	−0.67	-0.75
Confidential 13F Form Filings: Disposition Sample										
Confidential Holdings	612	−0.60%	−0.30%	0.46%	0.51%	−0.46%	−0.23%	−0.36%	−0.70%	−0.08%
Original Holdings	54,154	−0.09%	−0.07%	0.10%	0.17%	−0.06%	0.16%	0.27%	0.43%	0.65%
Diff.: Confidential − Original		−0.51%	−0.23%	0.36%	0.34%	−0.40%	−0.39%	−0.63%	−1.13%	−0.73%
Clustered t−Stat.		−0.98	−0.38	0.49	0.42	−0.44	−0.54	−0.70	−0.88	−0.37

Table VI
Abnormal Returns of Original and Acquisition-Related Confidential Holdings and Institution Types

This table reports the results of multivariate regressions that examine the attribution of risk-adjusted performance of quarterly holdings to institutional characteristics and filing types. The dependent variable is the value-weighted DGTW benchmark-adjusted returns (in percentage points) for return horizons ranging from one month to 12 months from the quarter-end portfolio date. Panel A reports the results of regressions of abnormal returns on institution types. The unit of observation is a portfolio that consists of all the original holdings or all the acquisition-motivated confidential holdings of an institution-quarter. The original holdings of the Bank/Insurance Company group serve as the omitted category. "*BKCONF*" is the indicator for confidential holdings of the Bank/Insurance Company category. "*HFORIG*" and "*HFCONF*" are the indicators of original and confidential holdings of the Hedge Fund category. "*INVORIG*" and "*INVCONF*" are the indicators of original and confidential holdings of the Investment Company/Advisor category. "*OTHORIG*" and "*OTHCONF*" are the indicators of original and confidential holdings of others types of 13F institutions. In Panel A, standard errors are adjusted for heteroskedasticity and clustering at the institution level and quarterly dummies are included. T-statistics are reported below coefficient estimates in parentheses. Panel B reports the results of pairwise comparisons of abnormal returns within/across different institution types. The differences of the coefficients are reported for each comparison, and asterisks are used to mark the significance. Coefficients or differences marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

Panel A: Regressions of Abnormal Returns on Institution Types

	Return Horizon								
	1m	45days	2m	3m	4m	5m	6m	9m	12m
HFORIG	0.057	0.060	0.355***	0.543***	0.531***	0.784***	0.864***	1.288***	1.688***
	(1.14)	(1.00)	(4.78)	(6.19)	(4.68)	(5.28)	(5.48)	(5.64)	(5.68)
HFCONF	0.674*	0.740*	1.149***	1.851***	1.375**	1.530***	1.285**	1.439*	2.308
	(1.89)	(1.91)	(3.10)	(3.73)	(2.30)	(2.69)	(2.00)	(1.66)	(1.64)
INVORIG	0.004	0.034	0.161***	0.249***	0.222***	0.368***	0.401***	0.588***	0.656***
	(0.12)	(0.78)	(2.75)	(3.84)	(2.80)	(3.21)	(3.42)	(3.47)	(2.95)
INVCONF	0.896***	0.871*	1.424***	1.402**	1.479*	1.318	0.723	0.003	0.463
	(2.71)	(1.90)	(2.71)	(2.33)	(1.95)	(1.22)	(0.69)	(0.00)	(0.26)
OTHORIG	-0.053	-0.270	0.066	0.050	-0.181	-0.237	-0.184	0.016	0.397
	(-0.36)	(-1.61)	(0.38)	(0.28)	(-0.69)	(-0.75)	(-0.51)	(0.03)	(0.62)
OTHCONF	-0.020	0.701	1.941	-0.927	-1.145	2.083	-1.890	-3.592	-5.725
	(-0.02)	(0.73)	(1.47)	(-0.37)	(-0.33)	(0.53)	(-0.26)	(-0.49)	(-0.58)
BKCONF	-0.242	-0.462	0.189	-2.398	-3.060	-4.304	-4.534	-1.276	-6.393
	(-0.23)	(-0.52)	(0.08)	(-1.46)	(-1.27)	(-1.41)	(-1.36)	(-0.32)	(-1.31)
Constant	-0.247***	-0.261***	-0.319***	-0.260***	-0.476***	-0.472***	-0.365***	-0.494***	-0.541***
	(-10.44)	(-7.66)	(-6.54)	(-5.04)	(-7.74)	(-5.09)	(-4.04)	(-3.74)	(-3.09)
Observations	55143	55143	55143	55143	55143	55143	55143	55143	55143
R-squared	0.05	0.03	0.03	0.02	0.02	0.03	0.03	0.02	0.02

Panel B: Pairwise Comparisons within/across Different Institution Types

	Return Horizon								
	1m	45days	2m	3m	4m	5m	6m	9m	12m
Differences between Original and Confidential Holdings within Each Institution Type									
HFCONF−HFORIG	0.62%*	0.68%*	0.79%**	1.31%***	0.84%	0.75%	0.42%	0.15%	0.62%
INVCONF−INVORIG	0.89%***	0.84%*	1.26%**	1.15%*	1.26%*	0.95%	0.32%	−0.59%	−0.19%
(HFCONF+INVCONF)-(HFORIG+INVORIG)	0.76%***	0.76%**	1.06%***	1.30%***	1.11%**	0.94%	0.48%	-0.03%	0.48%
OTHCONF−OTHORIG	0.03%	0.97%	1.88%	-0.98%	-0.96%	2.32%	-1.71%	-3.61%	-6.12%
Differences between Confidential Holdings across Different Institution Types									
HFCONF−INVCONF	-0.22%	-0.13%	-0.28%	0.45%	-0.10%	0.21%	0.56%	1.44%	1.85%
HFCONF-BKCONF	0.92%	1.20%	0.96%	4.25%**	4.44%*	5.83%*	5.82%*	2.72%	8.70%*
INVCONF-BKCONF	1.14%	1.33%	1.24%	3.80%**	4.54%*	5.62%*	5.26%	1.28%	6.86%
HFCONF-OTHCONF	0.69%	0.04%	-0.79%	2.78%	2.52%	-0.55%	3.18%	5.03%	8.03%
INVCONF-OTHCONF	0.92%	0.17%	-0.52%	2.33%	2.62%	-0.77%	2.61%	3.60%	6.19%
(HFCONF+INVCONF)-(BKCONF+OTHCONF)	0.91%	0.71%	0.25%	3.33%**	3.57%*	2.69%	4.29%	3.14%	7.50%

Table VII
Abnormal Returns of Acquisition-Related Confidential Holdings and Stock Characteristics

This table reports the results of multivariate regressions that examine the attribution of risk-adjusted performance of acquisition-motivated confidential holdings to stock characteristics of the holdings. The dependent variable is the value-weighted DGTW benchmark-adjusted returns (in percentage points) for return horizons ranging from one month to 12 months from the quarter-end portfolio date. The unit of observation is a portfolio that consists of all the acquisition-motivated confidential holdings of an institution-quarter. The stock characteristic variables are the same as defined in Table IV. Standard errors are adjusted for heteroskedasticity and clustering at the stock level. Both quarterly and Fama-French 10-industry dummies are included. T-statistics are reported below coefficient estimates in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

	Return Horizon								
	1m	45days	2m	3m	4m	5m	6m	9m	12m
Log(Size)	-0.431***	-0.503***	-0.476***	-0.278**	-0.330**	-0.231	-0.264	-0.272	-0.258
	(-4.81)	(-4.68)	(-3.93)	(-2.09)	(-2.05)	(-1.26)	(-1.27)	(-0.91)	(-0.68)
Illiquidity	-1.715**	-2.046**	-1.705	-3.036***	-3.132**	-3.967**	-4.526***	-7.603***	-8.936***
	(-2.20)	(-2.22)	(-1.63)	(-2.59)	(-2.31)	(-2.57)	(-2.76)	(-3.27)	(-3.16)
Log(Analysts)	0.102	0.458***	0.658***	0.501**	0.715***	1.082***	0.951***	1.301***	1.772***
	(0.84)	(3.20)	(4.14)	(2.56)	(3.11)	(4.09)	(3.19)	(3.06)	(3.31)
DTD<1.64	0.163	-0.354	-0.536	-1.006**	-1.791***	-1.761***	-2.651***	-3.672***	-5.560***
	(0.56)	(-1.01)	(-1.38)	(-2.10)	(-3.26)	(-2.76)	(-3.72)	(-3.59)	(-4.43)
B/M	-0.483*	0.087	0.527	0.703	1.271**	1.701***	1.666***	2.230**	3.666***
	(-1.89)	(0.27)	(1.45)	(1.56)	(2.47)	(2.89)	(2.59)	(2.48)	(3.24)
Adj. Past Return	-1.307***	-1.170***	-1.010***	-0.608**	-0.539*	0.288	0.092	-0.035	-0.815
	(-7.62)	(-5.99)	(-4.37)	(-2.20)	(-1.65)	(0.74)	(0.20)	(-0.06)	(-1.26)
Constant	3.635***	3.210***	2.133**	1.345	1.049	-1.120	-0.167	-1.057	-2.386
	(4.87)	(3.63)	(2.19)	(1.25)	(0.80)	(-0.75)	(-0.10)	(-0.44)	(-0.80)
Observations	51917	51917	51917	51917	51917	51917	51917	51917	51917
R-squared	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01