Flights of Fancy:

Corporate Jets, CEO Perquisites, and Inferior Shareholder Returns

David Yermack
Department of Finance
Stern School of Business
New York University
44 West 4th St., Suite 9-160
New York, NY 10012
(212) 998-0357
dyermack@stern.nyu.edu

April 2004

Abstract

This paper studies perquisites of major company CEOs, focusing on personal use of company planes. For firms that have disclosed this managerial benefit, average shareholder returns underperform market benchmarks by more than 4 percent annually, a severe gap far exceeding the costs of resources consumed. Around the date of the initial disclosure, firms' stock prices drop by an average of 2 percent. Regression analysis finds negative associations between CEOs' personal aircraft use and their compensation and percentage ownership, in accord with Jensen-Meckling (1976) and Fama (1980), but both relations have small magnitude.

I thank Eliezer Fich, Stuart Gillan, William Greene, Eli Ofek, Robert Whitelaw, Jeffrey Wurgler, and seminar participants at NYU for helpful comments and data assitance.

Flights of Fancy:
Corporate Jets, CEO Perquisites, and Inferior Shareholder Returns

I. Introduction

This paper studies perquisite consumption by executives of major corporations, with a focus on CEOs' personal use of company aircraft. Perks have long been identified as a source of agency costs between shareholders and managers (Jensen and Meckling, 1976), and corporate jets regularly inspire criticisms of managerial excess by journalists and shareholder activists.[1] Data presented below indicate that personal aircraft use represents by far the most costly and fastest growing fringe benefit enjoyed by major company CEOs.

The central result of this study is that CEOs' personal use of company aircraft is associated with severe and significant under-performance of their employers' stocks. Firms that permit personal aircraft use by the CEO under-perform market benchmarks by about 4 percent or 400 basis points per year, after controlling for a standard range of risk, size and other factors. This result proves robust to a wide range of alternative performance measures and additional

[1] See Burrough and Helyar's (1990) account of management perks at RJR-Nabisco, which before its 1991 leveraged buyout maintained a fleet of 10 aircraft known as the "RJR Air Force." The planes were flown by a staff of 36 company pilots, housed in "the Taj Mahal of corporate hangars," and made available for use by CEO F. Ross Johnson's friends and pet dog (who was listed on one passenger manifest as "G. Shepherd"). The authors write that "the jets were a symbol of the increasingly fuzzy line between what constituted proper use of a corporate asset and what constituted abuse" (1990, pp. 93-94). Former Occidental Petroleum CEO Armand Hammer also attracted attention for his frequent personal use of the company's *Oxy One* aircraft, flying the plane in and out of the former Soviet Union on numerous personal, charitable and political trips. A representative example of a shareholder activist's critique of CEOs' corporate jet use appears in Minow (2001).

controls.

I find that shareholders react negatively when firms first disclose that their CEO has been awarded the aircraft perk, as stock prices fall by an abnormal 2 percent around the time of the relevant SEC filings. While this reduction in market value is significant, it does not appear to anticipate the full extent by which a company's stock will on average under-perform the market in the future.

The inverse relation between CEO aircraft use and company performance appears surprisingly strong and much larger than could be explained by the direct cost of the resources consumed. One might conjecture that CEOs who consume excessive perks may be less likely to work hard, less protective of the company's assets, or more likely to tolerate bloated or inefficient cost structures. Some regression evidence, presented at the end of the paper, supports this last possibility. High executive perks might also occur due to weak corporate governance.

To understand more clearly the role of perquisites in managerial compensation, the paper presents regression models that show associations between CEO aircraft use and a range of variables measuring corporate attributes and personal CEO characteristics. The results are at least partly consistent with both of the leading theoretical treatments of management perquisites, which appear in classic studies of organizational structure by Jensen and Meckling (1976) and Fama (1980).

Jensen and Meckling (1976) use perquisite consumption by managers as the basis for their formal model of the agency costs of outside equity in a public corporation.[2] They observe

[2] Jensen and Meckling state that in their analysis, perk consumption can be viewed as a representative example of the numerous ways in which agency problems can arise between a manager and shareholders, such as shirking or risk avoidance on the part of the manager.

that when an owner-manager sells stock to the public and reduces his ownership below 100%, incentives increase for the manager to expend corporate resources for personal benefit. "As the owner-manager's fraction of the equity falls, his fractional claim on the outcomes falls and this will tend to encourage him to appropriate larger amounts of corporate resources in the form of perquisites," the authors write (p. 313). This diversion of resources from the company to the manager is viewed by the authors as a pure reduction in the value of the firm. A clear prediction of Jensen and Meckling's model is that perk consumption by a CEO should vary inversely with his fractional ownership. Two further variables that should affect perk consumption, the authors continue, are a manager's personal tastes and the difficulty of monitoring the manager's actions.

Fama (1980) views perquisites more benignly, essentially arguing that "consumption on the job" by managers amounts to a form of compensation that can be offset through adjustments in salary or other forms of pay. Fama describes the interaction between managers and their boards of directors in terms of a dynamic of "ex post settling up," in which the manager's wage is regularly revised to account for his performance and his personal consumption of company resources. Fama's model implies that perk consumption represents an agency cost only to the extent that its value exceeds the subsequent consequences to the manager from ex-post settling up wage revisions. Fama's theory, then, appears to predict an inverse association between perk consumption and compensation, controlling for other attributes that affect compensation such as industry, performance, and experience. Like Jensen and Meckling, Fama also suggests that managerial tastes and the difficulty of monitoring will affect managers' pequisites.

My regression analysis provides limited support for both the Jensen-Meckling and Fama theories of perk consumption. I find a negative association between CEOs' personal aircraft use

and their level of abnormal compensation, measured as the residual from a separate compensation regression model. While this finding is consistent with Fama's ex-post settling up perspective, its magnitude is quite small and it has only borderline statistical significance. A CEO who consumes an extra $1,000 in perks, according to the model's estimates, will see his other compensation fall by about 10 cents. For the CEO's fractional stock ownership, I find a significant negative association with personal aircraft use, at least over the range of low ownership in which most CEOs lie. This result is consistent with the predictions of the Jensen-Meckling model, though its magnitude is again relatively small, implying that if CEO ownership rises by one percentage point, which would represent an investment of about $200 million in the typical sample firm, perk consumption would be expected to decline by about $5,000.

Further regression results indicate that CEOs' personal characteristics such as education and political affiliation have significant explanatory power for patterns of perk consumption. I find very little evidence, however, that variables associated with monitoring or governance have any association with perks.

The remainder of the paper is organized as follows. Section II presents a description of the data. Section III contains a regression analysis of patterns of CEO's personal aircraft use. Section IV analyzes the stock market performance of firms that do and do not permit personal use of company planes by their managers, presenting both event-study and long-run portfolio evidence. Section V concludes.

II. **Data description**

Data for this study is drawn from a panel of 237 large companies over the ten-year period

1993-2002. To qualify for the sample, a firm must be included in the 2002 *Fortune 500* ranking of largest U.S. companies and also be covered by the ExecuComp database for at least the seven year period 1996-2002. This selection rule attempts to strike a balance between survivorship bias and the need for sufficient observations for each firm to permit panel data analysis, while keeping the costs of data collection reasonable. I collect data back to 1993 when available for each firm. I delete observations for years in which a firm was not publicly traded for the entire fiscal year. The final sample has 2,340 observations, with most firms appearing in the sample for ten full years. Those observations cover 485 individual CEOs, a small handful of whom serve more than one term with the same company.

I merge financial, stock market, governance, and compensation data from a variety of on-line databases to create the paper's data set. Financial statement data comes from Compustat, stock market data from CRSP, institutional ownership data from Thomson Financial's CDA/Spectrum, governance data from IRRC, analyst data from I/B/E/S, board of directors data from Standard & Poor's Compact Disclosure, and compensation data from ExecuComp. When necessary, I fill in missing data by using proxy statements.

Table I presents descriptive statistics about the sample. The sample firms have median annual sales of close to $7 billion, median total assets above $10 billion, and median market capitalization close to $8 billion. Governance parameters for sample firms are similar to those found in other studies, with boards of about 12 directors having majorities of outside directors. Institutional investors own about 60 percent of the stock of a typical firm. Institutional ownership concentration is measured as the ratio of the five largest institutional positions divided by total institutional ownership, a statistic found by Hartzell and Starks (2003) to have positive

associations with various measures of management incentives. The IRRC database's governance index counts the number of takeover defenses and other anti-shareholder provisions in a firm's charter and bylaws, following Gompers, Ishii, and Metrick (2003), who find this index to have negative associations with a company's stock market performance.

Data for individual CEOs closely resemble statistics describing samples from prior research. The typical CEO is about 58 years old, with a mean of seven years service (median of five) and mean ownership of about 1.5% of the firm's shares (median of 0.4%). I calculate ownership by adding shares owned plus vested options and dividing the total by shares outstanding plus vested options. CEOs receive mean cash salary and bonus compensation of about $2.1 million (median $1.6 million) and additional annual income from stock option and restricted stock awards. Stock options, valued by ExecuComp's modified Black-Scholes methodology, deliver a large, skewed distribution of compensation, with a mean of $4.5 million, median of $1.6 million, and 75th and 90th percentile values of $4.0 and $9.3 million, respectively.

Theories of perquisite consumption stress the crucial role of tastes and preferences of individual CEOs. It is impossible to measure such variables directly, but I am able to collect two variables about the backgrounds of my sample's 485 CEOs that one might expect to exhibit correlations with their perk preferences. CEOs' political affiliations can be observed from databases of donations maintained by the Federal Election Commission. I classify CEOs as either Republicans or Democrats if a clear majority of their donations are directed to one party's candidates or organizations. Fifty-five percent of the CEOs appear to be Republicans and 19 percent Democrats. An additional 19 percent donate fairly evenly to both parties, and the remaining 7 percent have no record of political donations. CEOs' educational backgrounds are

provided by *Forbes* magazine's annual executive compensation surveys, supplemented when necessary by on-line news searches. Six percent of the sample CEOs have no college degree, but a majority have attained a graduate degree of some type, including 38 percent MBAs, 10 percent JD or LLB law degrees, and 5 percent PhD's.

Data on CEO perk consumption has not been tabulated by any on-line source, and for this study I obtain it by reading annual proxy statements for each of the observations in the sample. Perk data has been disclosed in proxy statements since 1993, generally in a footnote to column (e) of the Summary Compensation Table, headed "Other Annual Compensation." Following the SEC's proxy disclosure regulations, this column includes "the dollar value of other annual compensation not properly classified as salary or bonus," with "perquisites and other personal benefits" as one of several mandatory items that are combined into an aggregate total.[3] These regulations became effective at the end of 1992, and most companies began applying them to their proxy filings in 1993. The SEC's EDGAR database, the central source for electronically filed proxies, has coverage that begins one year later, for proxies filed in 1994 and after, which accounts for the cutoff date for the sample in this study.

SEC regulations specify minimum thresholds for perk disclosure, and these thresholds complicate data collection. The total value of perks must be disclosed based upon their "aggregate incremental cost" to the company, but only if the total exceeds the lesser of $50,000 or 10 percent of the executive's salary plus bonus (for all but 63 observations in my sample, the CEO earns $500,000 or more in salary plus bonus). In such cases, the total cost of perks may not be directly observed, because many companies disclose the perk total only after aggregating it

[3] Disclosure regulations appear in 17 CFR 228.402, "Executive Compensation," and the regulations for perk disclosure are in §228.402(b)(2)(iii)(C).

with other data items reportable in the same column of the table, such as above-market interest on deferred compensation and income tax reimbursements. A further requirement is that the company must itemize the cost of any individual perk, such as personal aircraft use, if it exceeds 25 percent of the overall perk total, assuming that the total exceeds the $50,000 threshold.[4] Firms' compliance with this itemization requirement provides the data used in this study.

The structure of the SEC's disclosure rules cause data for CEOs' personal aircraft use to be censored. Assuming the CEO earns at least $500,000 salary plus bonus, firms never have to disclose aircraft use if its cost lies below $12,500 (equal to 25 percent of the $50,000 overall threshold), and will have to disclose values above $12,500 only to the extent that other perk consumption is not large enough to reduce aircraft use to below 25 percent of the overall perk total. Inspection of the data indicates that other categories of perks are rarely larger than aircraft use, so one can conclude that in the large majority of cases, values above $50,000 will be disclosed. Values between $12,500 and $50,000 will be disclosed to the extent that the CEO receives enough other perks to surpass the $50,000 overall threshold.

From reading a large number of proxy statements, it is evident that several disclosure loopholes limit the transparency of perk consumption data. A CEO who makes significant use of a corporate plane for personal travel may nevertheless avoid disclosure under one or more of the following scenarios:

[4] The original draft of the disclosure regulations set the overall threshold at the lesser of $25,000 or 10 percent of total cash compensation, and required itemization of every perk received, regardless of amount, if the overall threshold were exceeded. See SEC Release No. 33-6940, 34-30851 (June 23, 1992). The overall limit was raised to $50,000 "to reflect inflation," while the requirement to itemize each category was dropped without explanation. See SEC Release 33-6962, 34-31327 (October 16, 1992).

1. The company may incur slightly less than $50,000 incremental cost for aircraft use by the CEO and make no other perks available to the CEO, meaning the no disclosure at all is required.

2. The CEO may receive perks in five or more categories in roughly equal proportions, so that none accounts for 25 percent of the overall total. In this case only the total value of all perks must be disclosed, though it may be concealed by combining it with other items as part of the "Other Annual Compensation" column of the proxy statements's compensation table.

3. The CEO may receive very large perks in one category other than aircraft use, so that only that category is disclosed. This is common when new CEOs receive relocation expense reimbursements, which can be quite large.

4. The company may aggressively classify certain types of income as "perquisites" and count it toward the overall threshold, allowing it to itemize only those categories if they are large enough and thereby obscure the consumption of other perks. Some companies appear to have adopted this practice with such financial items as retirement contributions and insurance policy payments, which are more properly viewed as tax and income deferral strategies rather than perquisites.

5. The company may choose not to classify personal aircraft use as a perquisite if at least some part of a trip involves business.

6. The company may make a disclosure that identifies the types of perks received by a CEO without itemizing the dollar value of each, a practice that appears to violate the SEC's regulations but is nevertheless followed by some firms.[5]

Table II presents data about disclosures of CEO perquisites, and the reader is reminded again that the data are subject to censoring due to the SEC's regulations. The SEC also provides no guidance about how companies should calculate the "incremental cost" of benefits such as aircraft use, meaning that different firms likely use different methods to produce the data that are disclosed to shareholders. Perks are rank-ordered in Table II according to the frequency of their disclosure in the sample. Companies use certain euphemisms to describe personal aircraft use,

[5] For a representative example, see the March 20, 2003, proxy statement of Sears, Roebuck and Co. The company reports that CEO Alan J. Lacy received $64,975 in Other Annual Compensation for 2002. The relevant footnote states, "Represents tax reimbursement payments and/or above-market interest on deferred compensation. For Mr. Lacy, the figure also includes use of corporate transportation and financial planning."

such as “travel expense” and “corporate transportation.” I generally assume that such language refers to airplane or helicopter travel rather than limousines, trains, or boats, unless disclosures indicate otherwise. In some cases the company lists travel expenses for the CEO’s spouse or tax reimbursements for income imputed to the CEO related to corporate aircraft use; I tabulate these as part of the CEO’s overall aircraft use totals. The minimum values for items listed in each row of the Table II indicate that some firms voluntarily disclose perk costs even when they fall below the SEC’s thresholds, but these disclosures represent only a small part of the sample. Since the disclosures are based upon incremental cost of perks to each company, they would not capture the full cost of providing certain services to CEOs, as items such as amortization of an aircraft’s acquisition cost wouldn’t properly be viewed as incremental.

Data in Table II indicate that aircraft use is by far the largest disclosed CEO perk, appearing more than twice as often as the next most popular item, financial counseling, which includes tax preparation, estate planning, and the cost of representation in contract negotiations. In contrast to personal aircraft use, financial planning may yield monetary benefits for shareholders if it leads to a structuring of compensation that generates net tax savings for the CEO and firm. Company cars, country club memberships, moving expenses, medical reimbursements (above the firm’s regular health insurance), and personal security also appear on the list of perks in Table II. Moving expenses can be large and exceed aircraft use in some cases, since they usually include the cost of renting a temporary home for the CEO. However, the data indicate that these perks are overwhelmingly concentrated among new CEOs who are either hired from outside the firm or must relocate to headquarters after being promoted (some CEOs also relocate if headquarters is shifted due to a merger or other event). I do not tabulate

data for perks that are strictly financial and appear to represent tax deferral strategies, such as split-dollar life insurance or pension plan contributions.

Figure 1 shows a sharp increase in the frequency of personal aircraft use over the ten-year sample period, with the annual rate having risen from 9 percent in 1993 to above 30 percent in 2002. In the graph, personal aircraft use is coded as 1 if it is disclosed by the company for either the CEO or another top 5 officer, and it is also included if referred to in a footnote without a specific dollar cost being itemized. The rise of fractional aircraft ownership occurred during the sample period, reducing dramatically the up-front costs of access to corporate jets and probably contributing importantly to the increasing use shown in Figure 1. The sample selection design may also affect this pattern, as membership in the 2002 *Fortune 500* is one criteria for inclusion, and firms on *Fortune* list probably performed well in the years prior to 2002. However, aircraft use data look extremely similar for the subset of firms that were listed in the *Fortune 500* for the entire sample period. The terrorist attacks of September 11, 2001, also appear to have played a role in increased corporate aircraft use, at least at the tail end of the sample period. Since that time commercial air travel has become more costly and less convenient, and some CEOs or their boards may perceive corporate jets as safer than commercial ones.[6] A handful of proxy statement disclosures, even some before the terrorist attacks, indicate that for security reasons, the board requires the CEO to use corporate aircraft for personal travel.

Table II indicates that the median cost to the company of CEO's personal aircraft use,

[6] Such a perception would probably be misplaced. Data tabulated by the National Business Aviation Association indicate that while the total accident rate per flight hour is comparable for corporate and commercial flights, corporate aviation has a much higher fatal accident rate. If the data were recalculated per passenger mile flown, they would skew more dramatically in favor of commercial aviation, since commercial aircraft carry more passengers and travel at greater speeds. See www.nbaa.org/basics/safety/background.htm and Carley (1997).

when disclosed, is a little above $50,000. Costs of operating different aircraft vary greatly. Maynard (2001) uses data from Executive Jet Inc., the leading time-share company, to estimate the hourly cost of leasing an eight-person Cessna Citation V aircraft as $10,000, or $2,500 per person if the CEO on average travels with three other passengers. A CEO with $50,000 in reportable aircraft use would therefore spend about 20 hours per year in the sky, enough for perhaps three round-trips between New York and Florida, for example.

III. Determinants of CEOs' personal use of aircraft

Data for CEOs' personal aircraft use has many zero-valued observations, since not every firm has a corporate jet or permits its executives to use it as a perk. Additionally, the previous section describes how the SEC's proxy regulations lead to censoring of the data for actual aircraft use when it falls below the threshold required for disclosure. Given these properties of the data, I rely on a Tobit regression model to analyze how the cost of CEO aircraft use in each firm-year is related to a range of explanatory variables. The main purpose of this analysis is to evaluate whether perquisite data conform to the Jensen and Meckling (1976) and Fama (1980) theories of perk consumption.

The Jensen-Meckling model predicts an inverse association between CEOs' perks and their fractional ownership, and I therefore use percent ownership of the firm's equity (including vested options) as an explanatory variable. In an alternative specification of the model, I use a piecewise decomposition of the CEO's percentage ownership, with slopes estimated over ranges between (i) 0 and 5 percent, (ii) 5 and 10 percent, and (iii) above 10 percent. This approach follows Mørck, Shleifer and Vishny (1988) and successor studies that have found ambiguous

associations between ownership its countervailing incentive and entrenchment effects. Most papers in this line of research find that CEO ownership incentives are effective at improving company performance when ownership is low. However, ownership increases over a middle range appear to serve more as entrenchment than incentive devices, before resuming their effectiveness as incentives at high ownership ranges. The original Mørck et. al paper and other studies usually use 25 percent ownership as the break point between the second and third ownership ranges. I set the break point at 10 percent because only a tiny number of CEOs in my sample of large companies exceed 25 percent ownership,[7] and none has disclosed personal use of company planes.

Fama's theory of perk consumption implies a downward adjustment in compensation when perks are high. To evaluate this possibility, I first fit an ordinary least squares regression model of expected compensation for each CEO-year observation. The regression has total compensation as the dependent variable, equal to the sum of salary, bonus, restricted stock awards, and stock option awards. Option awards are valued using ExecuComp's Black-Scholes approach. Explanatory variables in the compensation regression include industry dummy variables, year dummy variables, firm size (the log of sales), the CEO's years of service, and abnormal stock performance (the firm's annual stock return minus the return on the relevant CRSP beta decile, both compounded continuously). I save the residuals from the estimation and include them in the Tobit perk regression as a measure of abnormal or excess compensation. If the CEO's pay is adjusted downward when perk consumption is high, this variable should

[7] Eighteen CEO-year observations in the sample exceed 25 percent ownership, and 10 of those 18 are attributable to Warren Buffett of Berkshire Hathaway. Berkshire owns Executive Jet, the leading firm in the fractional ownership segment of the corporate aviation market, and he therefore might be thought of as the person who facilitates (and profits from) the perk consumption of many of the lower-ownership CEOs in the sample.

exhibit a negative coefficient estimate.

A range of variables might represent proxies for the amount of monitoring that constrains CEO perk consumption. The regression models include five different measures of potential monitoring strength: the log of board size, the percentage of outside directors, the log of the number of analysts following the company (according to I/B/E/S earnings surveys), total ownership by institutional investors, and the concentration of institutional ownership. As discussed above, this last variable follows the definition of Hartzell and Starks (2003) as the ratio of the five largest institutional owners' positions over total institutional ownership.

CEO tastes and preferences also should affect perk consumption. I include in regressions CEO age and a dummy variable for membership in the company's founding family, both standard variables that have been found by many authors to have associations with patterns of ownership and compensation. In addition, I tabulate information about CEOs' education, relying mostly on data published in *Forbes* magazine's annual compensation surveys. The model includes dummy variables for CEOs with no college degree, and for a range of graduate degrees including MBAs, JD or LLB law degrees, PhDs, and all other. Finally, I use information about CEOs' political donations to construct dummy variables for CEOs that donate mostly to Republicans, mostly to Democrats, or fairly evenly to candidates from both parties. Executive compensation has become a political issue in the U.S. over the past decade, and it is plausible that Republican and Democrat CEOs have different attitudes about perk consumption.

Finally, the regression models include control variables for company size, measured as the log of sales; leverage, measured as long-term debt over total assets; and a time trend, measured as the difference between the year and 1993.

Table III presents estimates for Tobit models of the cost of CEOs' personal aircraft use. The left column shows estimates for a model with CEO percentage ownership as a continuous variable, while the right column shows estimates for a piecewise model of ownership with breakpoints in the slope permitted at 5% and 10%. Both models include firm fixed effects, equivalent to assigning a separate intercept term to each firm that has at least one nonzero observation.

Estimates for the excess compensation residual are negative under both specifications with borderline statistical significance. The negative sign provides some support for Fama's (1980) theory about perk consumption, since it implies that a CEO's compensation is adjusted downward when his perk consumption increases. However, the marginal effect of the estimated coefficient is small. Based upon the partial derivative of the likelihood function, the marginal effect is very close to -0.0001, implying that an additional $1,000 in perks consumed by the CEO leads to a reduction in compensation of 10 cents, an economically negligible amount. This estimate is far too small to support explanations for perk consumption that rely on marginal tax differentials between the firm and CEO or the CEO placing a personal value on perks that exceeds the firm's cost of providing them.

The CEO ownership variable also provides evidence of the predicted negative association with perk consumption, at least in the piecewise model in the right column. The pattern of piecewise estimates conforms to Mørck et. al (1988) and other studies, with a negative and significant estimate over the lowest ownership range, a positive estimate over the middle range, and a negative but fairly weak estimate over the highest range (neither of the last two estimates have statistical significance). These estimates imply that increases in ownership act as a curb

against perk consumption at both low and high ownership levels, but that greater ownership provides protective cover that CEOs use to extract greater perks over a middle ownership range.

The overwhelming majority of CEOs in this sample lie in the low ownership range, so the estimate for the first section of the piecewise model has the greatest interest. The marginal effect for that estimate, based upon the partial derivative of the likelihood function, is -503.0. The Jensen-Meckling theory of perks predicts that CEOs trade off the value of perk consumption against the reduction in personal ownership value entailed by that same consumption. The marginal effect implies that a 1% rise in CEO ownership leads to a $5,030 reduction in perk consumption, which seems quite small compared to the cost of the additional equity investment, which would be $201 million ($77 million) in the mean (median) sample firm. I conclude that equity incentives against perk consumption seem to resemble those from compensation, with some evidence of statistical significance but economically small magnitude.

Variables associated with CEO tastes and preferences have clear impacts upon patterns of corporate aircraft use, as shown by the many statistically significant estimates in Table III. Older CEOs are more likely than younger ones to make personal use of company aircraft. This pattern may arise due to increasing frailty of CEOs as they age, or it may represent opportunism by CEOs who consume perks heavily near the end of their careers with reduced fears that ex-post settling up wage revisions will permanently impact their compensation. CEOs from founding families also use corporate aircraft with abnormally high frequency, perhaps indicating that founders do not recognize boundaries between personal and corporate property as clearly as non-founders. Political affiliation has some impact upon perk consumption, but in a non-partisan way. CEOs who make no political donations (the omitted dummy variable) are the heaviest

users of corporate jets, while CEOs who make donations to both parties are the lightest users. CEOs who clearly are Democrats or Republicans fall somewhere in the middle. Finally, a striking pattern of CEOs' personal aircraft use and their education is suggested by Table III. Those CEOs with the least education (no college degree) are the heaviest aircraft users., while those with the highest advanced degrees (Ph.D.s) are the lightest. CEOs who hold MBAs or other masters degrees are somewhere in between, and CEO-lawyers have significantly higher aircraft use than normal, though not as high as non-college graduates.

Variables measuring monitoring difficulty have little success in explaining CEOs' patterns of aircraft use. For the five monitoring variables tabulated in the two models of Table III, only one coefficient estimate among the ten has statistical significance, and that result is borderline at the 10 percent level. Other control variables for company size and the time trend both have positive and significant estimates as expected.

Given the weak magnitude of the coefficients for the compensation and ownership variables in Table III, coupled with the absence of significant results for the governance and monitoring variables, the regression estimates provide modest evidence at best that CEO perquisite consumption exhibits a rational relationship to other managerial incentives and internal controls in a firm. The results weaken even further if the dependent variable is Table III is changed from aircraft usage to total perk consumption. In those regressions, which are not tabulated to save space, the compensation variable loses half its magnitude and is no longer statistically significant, and the three ownership variables are insignificant as well.

IV. **CEO aircraft use and company stock returns**

This section studies the association between CEOs' personal use of company aircraft and firms' stock returns. Section A presents event study evidence of how stock prices react when a CEO's aircraft use is first disclosed. Section B presents long-term stock return evidence about the performance of firms that permit personal CEO aircraft use. Section C presents evidence about the operating performance of these firms, to complement the results developed in Section B.

A. Event study evidence

To evaluate shareholder reactions to CEOs' personal use of corporate aircraft, I study abnormal stock price changes when proxy statements are published disclosing that companies have begun granting this fringe benefit. In my 1993-2002 sample of 237 firms, 63 companies disclose no CEO aircraft use for either of the first two years and then begin disclosing it for some future year or years.[8] I use the two-year exclusion screen at the start of the sample period to be reasonably certain of limiting the observations to firms that hadn't before permitted personal CEO aircraft use.

Abnormal stock returns are calculated using standard market-model methodology. The event date for the analysis is the day on which a proxy statement is posted on the SEC's EDGAR website, where corporate filings are available for public inspection. A few firms file preliminary proxy statements several weeks in advance of their official filings, and I use the posting dates for

[8] One additional company was dropped from the analysis because it omitted its annual compensation disclosure due to a major acquisition during the year in which it began permitting personal CEO aircraft use. The aircraft use was disclosed in the next year's proxy statement.

these preliminary documents if they occur. Figure 2 illustrates mean cumulative abnormal stock returns for the sample of 63 firms beginning two weeks or 10 trading days prior to the proxy statement posting date. I extend the event window until one day after the filing day because some firms may post their documents after the market closes.

Stock prices exhibit essentially zero change until one week before the event day, at which point they begin to trend downward. It is possible that some firms begin printing and mailing hard copies of their proxies within the week prior to the document's posting at the SEC, accounting for the smooth, gradual one-week decline of the sample average CAR. As shown in Table IV, the mean CAR over the interval $[t_{-5}, t_{+1}]$ is -1.99 percent, with a t-statistic of 2.43, significant below the 5 percent level.

A loss of 2 percent in market capitalization is worth about $150 million for the median firm in the sample, far in excess of the disclosed incremental cost to the company of a CEO's personal aircraft use. However, the incremental cost does not include amortization of the aircraft itself, and a top-of-the-line corporate jet can cost $35 million or more. If shareholders view the entire corporate aviation activity of a firm as a deadweight cost that yields no compensating benefits, and if one factors in additional costs for storage, maintenance, fuel, and operation of the plane, then the dollar loss in shareholder wealth could approximate the true present value cost to the firm of acquiring an aircraft and making it available to the CEO for both business and personal travel.

The CAR results indicate that shareholders do not welcome the news that firms permit CEOs to use corporate aircraft for personal travel. The lower half of Table IV presents a simple regression analysis that shows an association between stock price reactions and the

compensation and ownership levels for each CEO. I regress the CAR for $[t_{-5}, t_{+1}]$ against an intercept, the excess compensation residual described above in Section III, and the CEO's percentage stock ownership in both its continuous and piecewise specifications. A significantly negative estimate emerges for the compensation variable, indicating that shareholder reactions to CEOs' corporate jet use are mitigated if the CEO earns lower compensation. This pattern is consistent with the Fama (1980) perspective that perks are benign if offset by reductions in other forms of compensation. The model also indicates a significantly negative estimate over the lowest range of the ownership variable, followed by a positive and much stronger estimate over the middle ownership range. These estimates are more difficult to interpret; they may suggest that shareholders are displeased when CEOs receive perks and have only weak ownership incentives to discourage further consumption in subsequent years.

B. Long-term stock performance

I use the standard Fama-French (1993) three-factor analysis of annual stock returns to assess the ongoing market performance of firms that permit their CEOs to have personal use of corporate aircraft. Results for the analysis appear in Table V. Coefficient estimates for a dummy variable for aircraft use appear in the last row of the table. These coefficients represent the differential annual returns to stockholders of firms that permit executives to use corporate aircraft for personal travel. Other explanatory variables in the regression include an intercept, the return on the CRSP value-weighted market index, differential returns on portfolios of growth stocks compared to value stocks, and the differential returns on portfolios of small capitalization stocks compared to large cap stocks. Data for these market factors are obtained from Ken

French's web site. The risk-free rate is subtracted from both the dependent variable and the market index. The table reports Beck and Katz (1995) panel corrected standard errors which take account of heteroskedasticity and cross-correlations between firms. Because the standard error calculations require a balanced panel, I base the calculations on the 220 firms (out of 237 in the sample) than have ten full years of trading data available. This sub-sampling requires me to discard 136 observations, about 6 percent of the total, but basic OLS regressions show that coefficient estimates and standard errors for the full unbalanced panel exhibit almost no difference compared to estimates for the balanced subsample.

Certain definitional issues arise in coding the dummy variable for CEO aircraft use. Companies disclose personal CEO aircraft use for 15.2 percent of the sample observations. In another 2.2 percent of cases, a different top 5 executive has disclosed aircraft use while the CEO does not. For these observations, I assume that the board is unlikely to make a perk available to lower management without also awarding it to the CEO, so I code those observations as 1, raising the sample mean to 17.4 percent. In these cases, I reason that the CEO is likely using the aircraft as well but at a level that falls below the SEC's disclosure thresholds.

A more difficult situation arises for years in which zero aircraft use is disclosed for the entire management team, but prior years' data indicate that the company had been awarding this perk in the past. The Appendix presents two such examples. As of 2002, in about half of these cases the CEO and/or other managers will again have disclosed personal use in future years following a year of zero disclosure. I therefore reason that zero disclosed use, coming after one or more years of positive disclosure, also represents censoring of positive data due to the SEC's reporting thresholds. I code as 1 all observations for a company following the first annual

disclosure of personal aircraft use by a top 5 executive, thereby raising the sample average for the aircraft use variable to 21.4 percent. Later in this section I show that the main regression results continue to hold regardless of the definition of the aircraft variable, although narrower definitions lead to coefficient estimates with somewhat less negative magnitudes.

Table V presents the main regression analysis of the stock market performance of firms that permit personal CEO aircraft use. In the left column, the standard Fama-French model, the aircraft dummy variable has a coefficient of -4.44 percentage points with a t-statistic significant at levels below 1 percent. This result indicates that firms with CEO aircraft use under-perform the market by more than 400 basis points per year, equal to a shortfall of about $300 million in market capitalization each year for the median sample firm.

In the other columns of Table V, I add to the model explanatory variables that might have correlations with the aircraft variable. In the second column, I introduce Carhart's (1997) momentum factor, representing the differential return on portfolios of rising stocks and falling stocks. In the third column, I add the Gompers-Ishii-Metrick (2003) governance index. If CEO perk consumption arises as a consequence of weak corporate governance, the aircraft variable might merely be a proxy for broader governance problems in the firm. In the fourth column, I add a dummy variable for firms that were members of the *Fortune 500* in 1996 as well as 2002. This variable represents a control for sample selection bias; those firms that joined the *Fortune 500* at some point after 1996 must have performed well in the late 1990s in order to grow large enough to enter the index. In the final column, I include all three of the additional control variables together.

The impact of the additional control variables, either individually or together, is

negligible, as aircraft firms continue to exhibit under-performance on the order of 400 basis points with high levels of significance. Two of the three controls have statistical significance, though together they increase the model's adjusted R^2 only from 0.131 to 0.143. The governance index has a negative estimate, as expected, indicating lower returns for firms with takeover defenses and anti-shareholder bylaws or charter provisions in line with the findings of Gompers et. al (2003). However, its estimate is not significant. The dummy variable for older *Fortune 500* firms is also negative as expected, indicating that other sample firms that rose up to join the *Fortune 500* after 1996 were superior market performers compared to firms that remained in the index for the entire period.

Table VI presents results from robustness tests to verify the persistence of the negative estimates for the CEO aircraft use variable across a wide range of alternative specifications. The top left cell of the table reproduces the coefficient estimate and t-statistic for the aircraft variable from the basic model in the left column of Table V. Each additional cell of the table contains the coefficient estimate and t-statistic for the aircraft variable from a different regression. Estimates in the second row are for Fama-French models with the equal-weighted market return used in place of the value-weighted market return. In the third and fourth rows, value-weighted and equal-weighted industry-specific indexes are used in place of market-wide indexes. Industry assignments follow Fama and French's grouping of SIC codes into 48 industry portfolios, returns for which are posted on French's web site. The bottom row of the table shows results from regressing each company's annual stock return against the return on the NYSE/AMEX or NASDAQ CRSP beta decile portfolio to which each company is assigned. The first columns of the table use the same definition of the dependent variable as in Table V. In the second column,

the variable is coded 1 only for those years in which the firm discloses aircraft use for a top 5 executive. In the third column, the disclosed use must be for the CEO as opposed to any executive, but the variable is coded 1 in all years subsequent to the first disclosure. In the final column, the variable equals 1 only in the most restrictive case, when personal aircraft use is actually disclosed for the CEO.

Estimates for the aircraft variable in Table VI range from -0.0271 to -0.0554, with most of the estimates clustered near 400 basis points. All of the 20 estimates are statistically significant at conventional levels. The most restrictive definition of the dependent variable, in the right column, yields estimates slightly closer to zero compared to the broadest definition of the variable, in the left column. This pattern of estimates is consistent with the conjecture above that it is appropriate to treat certain zero-valued observations as censored, positive observations for aircraft use in cases where the use has been disclosed in prior years.

In further analysis that is untabulated, I estimate weighted least squares regressions of the same models in Table V, using market capitalization at the start of the year as the weight. Coefficient estimates are even more negative than for these weighted least squares estimates than for the equal weighted OLS models. I also examine whether results are sensitive to replacing the dummy variable for CEOs' personal aircraft use with a continuous variable. If the natural log of the dollar value of aircraft use is substituted for the dummy variable (with zero-valued observations set equal to zero), it has a negative coefficient estimate that is statistically significant with a t-statistic of -1.93. Using a linear instead of a logged measure of personal aircraft use also yields a negative estimate, but it is not statistically significant. The same result holds if aircraft use is scaled by the firm's market capitalization. A model estimated with both

linear and squared terms for aircraft use indicates a negative relation between aircraft use and stock returns up to a level of $200,000 annually, but a positive relation thereafter (only a small handful of sample firms report values this high). Analysis of the raw data indicate that the most severe under-performance occurs for firms that report values of CEO aircraft use between $50,000 and $100,000 per year; abnormal returns are negative but closer to zero for firms with values above and below this range.

Figure 3 shows abnormal stock returns for companies before and after the first year in which personal CEO aircraft use is disclosed, as well as companies that exhibit no CEO aircraft use at all and CEO aircraft use in every year of the sample period, based on the definition used in Table V. The latter two cases are shown by the two horizontal lines below the x-axis. The figure shows that firms adopting a policy that permits CEO aircraft use perform abnormally well prior to awarding this perk, and exceptionally well in the year just before the perk is granted, with abnormal stock performance of almost 8 percent. These data suggest that perhaps the aircraft use is provided as a reward to the managers of strongly performing firms. In the first year in which CEOs are permitted to use aircraft for personal travel, company performance plummets, to an abnormal return of -11 percent. It remains poor thereafter, but gradually moves in the direction of the (inferior) average performance for firms that have longstanding policies permitting CEO aircraft use.

C. Operating performance

Results in Section IV.B highlight the under-performance in the stock market of firms that permit CEOs to use company aircraft for personal travel. Given that these performance

shortfalls equal hundreds of millions of dollars per company per year, it would be difficult to argue that the direct costs of perk consumption alone could explain the gap.

Although many explanations could account for the poor performance of firms with CEOs who exhibit high perk consumption, one clear possibility is that these managers run their firms inefficiently, tolerating waste, excess overhead, or uncompetitive cost structures. Table VII presents a series of regressions that explore this possibility. In the top half of the table I regress firms' return on assets (based on pre-tax, pre-interest operating income) against the aircraft use dummy variable from Table V, as well as dummy variables for industries and years. In the lower half of the table, the same regression model is used with sales per employee as the dependent variable. Both random effects and fixed effects estimates are tabulated.

Table VII's results indicate a negative association between profitability and the aircraft use variable, but the estimates in the top half of the table are far from significant. However, in the lower part of the table a strong, significant negative association exists between the aircraft variable and sales per employee. These regressions indicate that firms with high CEO perk consumption also tend to be over-staffed relative to the competition, as they achieve $30,000 to $40,000 less in sales per employee. The results do not change meaningfully if control variables are added for firm size, leverage, and the governance index.

V. **Conclusions**

This paper studies perquisite consumption by CEOs in major companies, focusing on personal use of company aircraft, the most costly and frequently disclosed managerial fringe benefit. Data indicate that more than 30 percent of *Fortune 500* CEOs in 2002 were permitted to

use company planes for personal travel, up from a frequency below 10 percent a decade earlier.

Regression models of CEO personal aircraft use show negative associations with both compensation and equity ownership. These estimates are consistent with the classic analyses of perk consumption by Jensen and Meckling (1976) and Fama (1980). However, the magnitude of the estimates in both cases is small. A CEO who consumes an additional $1,000 worth of perks receives a compensation reduction of 10 cents, while a CEO with an additional percentage point of equity ownership in his firm would be expected to consume about $5,000 less in perquisites. Variables measuring personal characteristics of CEOs, such as age, political affiliation, and education, have marked associations with perk consumption. In contrast, variables associated with monitoring and governance have little significant association.

The most important results in the paper concern the association between CEO perk consumption and company performance. When personal aircraft use by CEOs is first disclosed to shareholders, company stock prices drop by about 2 percent. However, this value loss does not fully anticipate the future poor performance of such companies. Regression analysis indicates that firms permitting CEO aircraft use under-perform market benchmarks by about 400 basis points per year, a severe shortfall that cannot be explained simply by the costs of the resources consumed. Further analysis indicates that firms in this category have excess staffing and may be less profitable than their counterparts.

Appendix: Examples of annual perquisite data

In section IV.B of the text, I discuss various methods of defining a dummy variable that indicates whether a CEO has personal use of company aircraft. Table A1 presents examples from two companies to help illustrate patterns in the raw data that inform these definitional issues.

SEC regulations require disclosure of an executive's personal aircraft expense only if it exceeds 25 percent of his total perks and the perks together exceed $50,000 in cost to the company. Both examples show CEOs whose disclosures in most years indicate aircraft use and perk consumption above these thresholds. However, both firms' CEOs intermittently have zero reported perks. While it is conceivable that these individuals oscillate between heavy perk consumption in most years and zero perks in other years, it seems far more likely that their consumption falls somewhat below the disclosure thresholds in some years, leading to censoring of the data.

The right columns of Table A1 present two alternative methods of coding CEO personal aircraft use. In the first of the two columns, the variable is coded 1 only when the CEO's use is actually disclosed. In the second column, the variable is coded 1 in all years following the company's first disclosure. The second method would be more appropriate if one believed that the zero values following the first nonzero disclosure represented censored data.

References

Beck, Neal, and Jonathan N. Katz, 1995, What to do (and not to do) with time-series-cross-section data in comparative politics, American Political Science Review 89, 634-647.

Burrough, Bryan, and John Helyar, 1990, Barbarians at the Gate (New York: Harper & Row).

Carhart, Mark M., 1997, On persistence in mutual fund performance, Journal of Finance 52, 57-82.

Carley, William M., 1997, Despite a safe record, corporate jets have higher fatality rates, The Wall Street Journal, April 18, A1.

Fama, Eugene F., 1980, Agency problems and the theory of the firm, Journal of Political Economy 88, 288-307.

Fama, Eugene F., and Kenneth R. French, 1993, Common risk factors in the returns on stocks and bonds, Journal of Financial Economics 33, 3-56.

Gompers, Paul A., Joy L. Ishii, and Andrew Metrick, 2003, Corporate governance and equity prices, Quarterly Journal of Economics 118, 107-155.

Hartzell, Jay C., and Laura T. Starks, 2003, Institutional investors and executive compensation, Journal of Finance 53, 2351-2374.

Jensen, Michael C., and William H. Meckling, 1976, Theory of the firm: Managerial behavior, agency costs, and ownership structure, Journal of Financial Economics 3, 395-360.

Maynard, Micheline, 2001, Corporate planes: Perks or necessities? The New York Times, September 23, 3:6.

Minow, Nell, 2001, The use of company aircraft, unpublished manuscript, www.thecorporatelibrary.com/special/misc/aircraft.html.

Mørck, Randall, Andrei Shleifer, and Robert Vishny, 1988, Management ownership and market valuation: An empirical analysis, Journal of Financial Economics 20, 293-315.

Table I
Descriptive statistics

Descriptive statistics for a data set of 237 large firms during the ten-year 1993-2002 period. The sample includes companies listed in the 2002 *Fortune 500* and also covered by ExecuComp for the period 1996-2002. If available, data is tabulated from 1993 forward. Data is obtained from the Compustat, CRSP, IRRC, Compact Disclosure, and CDA/Spectrum databases, as well as company proxy statements. Leverage equals long-term debt over total assets. Institutional ownership concentration equals the ownership of the five largest institutions divided by total institutional ownership. The number of analysts equals the annual earnings estimates listed by the I/B/E/S database at the start of each firm-year. Governance index is a count variable measuring takeover defenses and other anti-shareholder provisions. Abnormal stock return equals the raw return minus the return on the CRSP beta decile portfolio for each firm-year. CEO ownership equals common stock plus vested options over shares outstanding. Stock option award values are based upon ExecuComp's Black-Scholes methodology. Political donation information for CEOs was obtained from databases of the Federal Election Commission, and education backgrounds were obtained primarily from *Forbes* magazine's annual compensation surveys, as well as Lexis/Nexis and Internet searches.

	Observations
Individual firms	237
Individual CEOs	485
CEO-firm-year observations	2,340

			Percentiles				
Firm variables	**Mean**	**Std. Dev.**	**10th**	**25th**	**50th**	**75th**	**90th**
Sales (bn)	$10.98	$13.09	$2.21	$3.73	$6.75	$13.22	$24.01
Total assets (bn)	$30.98	$77.29	$2.05	$4.09	$10.40	$24.90	$67.54
Market capitalization (bn)	$20.06	$40.23	$2.09	$3.79	$7.70	$17.83	$45.58
Leverage	0.40	0.25	0.09	0.22	0.38	0.54	0.68
Board size	12.1	3.6	8	10	12	14	16
Fraction of outside directors	0.79	0.11	0.64	0.73	0.82	0.88	0.92
Institutional ownership	0.589	0.155	0.381	0.487	0.604	0.697	0.779
Institutional concentration	0.35	0.10	0.23	0.28	0.34	0.41	0.48
Number of analysts	19.0	8.1	9	13	18	24	30
Governance index	9.7	2.7	6	8	10	12	13
Stock return (raw, annual)	0.169	0.412	-0.242	-0.071	0.118	0.361	0.607
Stock return (abnormal)	0.005	0.319	-0.330	-0.186	-0.025	0.146	0.358

Table I
continued

CEO variables	Mean	Std. Dev.	Percentiles 10th	25th	50th	75th	90th
Age	57.4	6.3	49	53	58	62	64
Years as CEO	6.9	7.1	0	2	5	9	16
Ownership fraction	0.0148	0.0361	0.0007	0.0016	0.0039	0.0087	0.0323
Founding family member	0.15						
Salary (mm)	$0.87	$0.38	$0.48	$0.67	$0.84	$1.00	$1.20
Annual bonus (mm)	$1.24	$1.85	0	$0.37	$0.80	$1.45	$2.50
Stock option award (mm)	$4.48	$16.72	0	$0.34	$1.59	$4.03	$9.28
Restricted stock award (mm)	$0.71	$2.74	0	0	0	$0.16	$1.77
Donor to Republicans	0.55						
Donor to Democrats	0.19						
Donor to both parties	0.19						
No college degree	0.06						
College only	0.37						
MBA graduate degree	0.38						
JD or LLB graduate degree	0.10						
PhD graduate degree	0.05						
Other graduate degree	0.10						

Table II
Perquisites reported for CEOs

Perquisite consumption data for CEOs in a sample 2,340 observations for 237 large companies between 1993 and 2002. Data is obtained from annual company proxy statements. According to SEC rules, companies must report perquisites for individual categories if the CEO's total benefits exceed $50,000 and an individual category represents more than 25% of the total. A small number of companies elect to report lesser-valued perquisites whose disclosure is not mandatory, and their data is included in the table. Perquisite values are reported according to incremental cost to the company. The table includes only non-financial perquisites involving tangible items or personal services and excludes deferred compensation, life insurance, and other tax deferral arrangements. Tabulations below exclude four observations dropped from the analysis due to missing values and also exclude ten observations for which the company disclosed aircraft use by the CEO but did not give a dollar value. All dollar values are in thousands.

			Statistics for non-zero observations				
Category	Non-zero observations	Freq.	Mean	Std. Dev.	Min.	Median	Max.
Personal use of company aircraft	346	14.6%	$65.3	$48.1	$0.5	$53.6	$360.0
Financial counseling	161	6.8%	$39.1	$45.8	$1.0	$25.1	$330.5
Company car and local transportation	94	4.0%	$25.9	$28.1	$3.0	$16.9	$139.8
Relocation and housing expenses	54	2.3%	$161.4	$188.7	$0.6	$97.6	$778.1
Country club dues	46	1.9%	$32.6	$28.7	$1.5	$24.9	$130.5
Medical care exceeding co. plans	20	0.8%	$14.8	$15.6	$0.8	$8.1	$73.2
Personal or home security	6	0.3%	$40.4	$29.5	$1.0	$37.7	$94.0

Table III
Tobit fixed effects estimates for CEO's personal use of corporate aircraft

Tobit regression estimates for models of the CEO's reported personal use of corporate aircraft, measured in thousands of dollars of incremental cost to the company. The sample is a panel of 237 large firms between 1993 and 2002. Excess compensation is the residual from a regression of total CEO compensation (salary, bonus, option, and restricted stock awards) against excess stock return, firm size, years as CEO, and industry and year dummy variables. Other variables are defined more completely in Table I. Both models include firm fixed effects.

Incentive variables	**Estimate**	**T-Stat**		**Estimate**	**T-Stat**	
CEO excess compensation	-0.0003	-1.53		-0.0003	-1.65	*
CEO fractional ownership	-106.1	-0.50				
CEO fractional ownership: 0% to 5%				-1406.9	-2.44	**
CEO fractional ownership: 5% to 10%				880.4	1.19	
CEO fractional owernship: 10% and above				-68.9	-0.15	
Monitoring variables						
Log (board size)	-5.4	-0.34		-2.6	-0.16	
Fraction of outside directors	7.6	0.23		7.2	0.22	
Institutional investor ownership (fraction)	62.1	1.62		68.8	1.80	*
Institutional ownership concentration	-36.7	-0.90		-38.7	-0.95	
Log (number of analysts)	-8.9	-1.07		-11.3	-1.36	
CEO characteristics variables						
CEO age	1.7	2.80	***	2.3	3.49	***
CEO as member of founding family	47.8	2.44	**	60.9	2.95	***
CEO donates to Democrats	-24.5	-1.20		-23.2	-1.14	
CEO donates to Republicans	-16.7	-1.03		-19.7	-1.22	
CEO donates to both parties	-44.5	-2.37	**	-48.1	-2.58	***
CEO has no college degree	124.1	4.62	***	149.1	5.00	***
CEO has MBA degree	-5.8	-0.58		-5.4	-0.55	
CEO has JD degree	24.2	1.78	*	27.3	2.01	**
CEO has other graduate degree	-11.8	-0.95		-10.9	-0.88	
CEO has PhD degree	-104.0	-3.20	***	-107.8	-3.25	***
Other control variables						
Company size (log of sales)	16.9	2.08	**	14.5	1.77	*
Leverage (long-term debt / total assets)	1.7	0.10		3.8	0.23	
Time trend (year - 1993)	9.5	6.88	***	9.3	6.83	***
Sigma	51.4	24.19	***	51.0	24.19	***
Number of observations	2,328			2,328		

Significant at 1% (***), 5% (**), and 10% (*) levels.

Table IV
Abnormal stock returns for initial disclosures of CEOs' personal aircraft use

Mean cumulative abnormal stock returns for a sample of firms around the dates of proxy statement filings. The sample includes 63 firms that for the first time report personal use of company aircraft by the CEO. The observations are drawn from a data set of 237 large firms between 1993 and 2002. Abnormal stock returns are calculated using standard market model methodology. The event date, day 0, is the date on which the proxy statement (or in two cases, a preliminary proxy statement) is filed electronically with the SEC. Panel A shows mean cumulative abnormal returns in an event window around the filing day. Panel B presents an ordinary least squares regression of the CARs from panel A, as a function of the CEO's excess compensation and fractional stock ownership. Excess compensation is the residual from a regression of total CEO compensation (salary, bonus, stock options, and restricted stock awards) against excess stock return, firm size, years as CEO, and industry and year dummy variables. Ownership in the second column is decomposed into a piecewise regression specification.

Panel A: Mean cumulative abnormal returns

Event window	(-5, 1)
Observations	63
Mean CAR	-1.99%
T-statistic	2.43

Panel B: OLS regression analysis of cumulative abnormal returns

Dependent variable: CAR over event window (-5, 1)

	Estimate	T-Stat		Estimate	T-Stat	
Intercept	-0.0179	-2.02	**	-0.0064	-0.67	
CEO excess compensation x 10^{-3}	-0.0012	-2.41	**	-0.0013	-2.74	**
CEO fractional ownership	-0.2583	-0.75				
CEO fractional ownership: 0% to 5%				-2.4333	-2.68	*
CEO fractional ownership: 5% to 10%				10.4088	1.83	*
CEO fractional owernship: 10% and above				-11.9282	-1.45	
Observations		63			63	
R^2		0.091			0.210	
Adjusted R^2		0.061			0.156	

Significant at 1% (***), 5% (**), and 10% (*) levels.

Table V
Regression estimates of stock performance as function of executives' personal aircraft use

Ordinarily least squares regression of companies' annual stock returns. The sample includes 220 large firms between 1993 and 2002. The dependent variable is the raw stock return minus the risk-free rate. The principal explanatory variable is an indicator for whether the company makes aircraft available for personal use by the CEO or another executive. The aircraft variable takes the value 1 in the first year in which the company discloses this fringe benefit and all subsequent years. Other explanatory variables include the Fama-French (1993) factors for excess return on the stock market (value-weighted), excess return for value stocks compared to growth stocks, and excess return for small stocks compared to large stocks; the Carhart (1997) factor for excess return of rising stocks compared to falling stocks; the Gompers-Ishii-Metrick (2003) governance index, and a dummy variable for firms that were in the *Fortune 500* in both 1996 and 2002. All returns and factors are compounded continuously. T-statistics appear below each estimate in parentheses, based upon standard errors robust to heteroskedasticity and cross-firm correlations.

	Estimate		**Estimate**		**Estimate**		**Estimate**		**Estimate**	
Intercept	-0.0062		0.0273		0.0302		0.0341		0.0964	*
	(0.27)		(1.07)		(0.87)		(1.35)		(1.94)	
Market excess return	0.7958	***	0.8082	***	0.7918	***	0.7980	***	0.8070	***
	(6.48)		(7.27)		(6.47)		(6.49)		(7.30)	
Value - growth excess return	0.5293	***	0.5548	***	0.5298	***	0.5325	***	0.5574	***
	(2.85)		(3.48)		(2.87)		(2.87)		(3.54)	
Small - large excess return	-0.0925		-0.2039		-0.0935		-0.0935		-0.2058	
	(0.50)		(1.24)		(0.51)		(0.51)		(1.26)	
Up - down excess return			-0.2964	**					-0.2965	**
			(2.31)						(2.32)	
Governance index					-0.0037				-0.0030	
					(1.19)				(1.03)	
Indicator for 1996 *Fortune 500* firms							-0.0507	*	-0.0495	*
							(1.88)		(1.92)	
CEO personal use of company plane	-0.0444	***	-0.0411	**	-0.0457	***	-0.0411	**	-0.0390	**
	(2.65)		(2.52)		(2.71)		(2.45)		(2.36)	
Observations	2,220		2,220		2,220		2,220		2,220	
R^2	0.132		0.141		0.133		0.136		0.146	
Adjusted R^2	0.131		0.139		0.131		0.134		0.143	

Significant at 1% (***), 5% (**), and 10% (*) levels.

Table VI
Coefficient estimates for aircraft use variable under alternative specifications

Alternative specifications of regression models of companies' annual stock returns as a function of executives' personal use of corporate aircraft. The table shows the estimated coefficient and t-statistic for the aircraft use indicator in 20 different models, with five different specifications of the main performance variable and four different definitions of the aircraft use variable. T-statistics are based upon standard errors robust to heteroskedasticity and cross-firm correlations. Models for the first four rows include the same Fama-French (1993) factors used in the left column of Table V, except for the alternate definitions of the market return variable. Industry excess returns are based on industry portfolios tabulated by Fama and French. The fifth row of the table is based on an alternative model, a regression of the company's stock return against the appropriate CRSP beta decile return. All models use the same sample of 2,220 observations as in Table V. The mean values of the various aircraft use variables are shown in the bottom row.

Explanatory variable:	Executive has personal use of company aircraft			
Use attributed to:	Any top 5 executive		CEO	
Use disclosed in:	This year or past years	This year	This year or past years	This year
Estimation method:	OLS	OLS	OLS	OLS
Market return variable				
Market return, value-weighted	-0.0444 *** (2.65)	-0.0439 *** (2.62)	-0.0357 ** (2.20)	-0.0383 ** (2.12)
Market return, equal-weighted	-0.0554 *** (2.97)	-0.0521 *** (2.96)	-0.0475 *** (2.59)	-0.0478 ** (2.51)
Industry return, value-weighted	-0.0319 ** (2.32)	-0.0362 ** (2.52)	-0.0271 * (1.92)	-0.0310 ** (1.97)
Industry return, equal-weighted	-0.0528 *** (3.22)	-0.0499 *** (3.22)	-0.0457 *** (2.76)	-0.0479 *** (2.61)
CRSP beta decile return	-0.0431 ** (2.15)	-0.0396 ** (2.20)	-0.0329 * (1.65)	-0.0336 * (1.66)
Mean value of aircraft variable	0.214	0.175	0.204	0.154

Significant at 1% (***), 5% (**), and 10% (*) levels.

Table VII
Regression analysis of operating performance variables

Regression estimates of firms' annual return on assets and sales per employee. Explanatory variables include dummy variables for industry and year, and a dummy variable for whether corporate aircraft is made available to the firm's executives for personal use. The aircraft variable takes the value 1 in the first year in which the company discloses personal aircraft use by a top 5 executive and in all subsequent years The sample is a panel of 237 large firms between 1993 and 2002. Return on assets is calculated based upon operating income before interest and taxes and is compounded continuously. T-statistics appear below each estimate in parentheses.

Dependent variable: Operating return on assets

	Random Effects Estimate	**Fixed Effects Estimate**
CEO personal use	-0.0021	-0.0014
of company plane	(0.73)	(0.43)
Year dummy variables	Yes	Yes
Industry dummy variables	Yes	n.a.
Observations	2,293	2,293
R^2	n.a.	0.817
Adjusted R^2	n.a.	0.792

Dependent variable: Sales per employee (000)

	Random Effects Estimate		**Fixed Effects Estimate**	
CEO personal use	-31.5	**	-40.6	**
of company plane	(2.11)		(2.55)	
Year dummy variables	Yes		Yes	
Industry dummy variables	Yes		n.a.	
Observations	2,296		2,296	
R^2	n.a.		0.758	
Adjusted R^2	n.a.		0.724	

Significant at 1% (***), 5% (**), and 10% (*) levels.

Table A1
Examples of annual CEO perquisite data

The table shows disclosed annual perquisite consumption data for the CEOs of two *Fortune 500* companies between 1993 and 2002. The SEC requires disclosure of total perquisite cost only if it exceeds $50,000, and it requires itemization of individual perquisite categories only if they exceed 25 percent of the perk total and the total surpasses the $50,000 disclosure threshold. The right two columns show two alternative definitions of an indicator variable for CEOs' personal aircraft use. Under the first definition, the variable equals 1 if the company discloses use of the aircraft in that year. Under the second definition, the variable equals 1 in the year of a disclosure and all subsequent years.

					Aircraft Use Variables	
Black & Decker Corp.		**Personal Aircraft Use**	**Financial Counseling**	**Total Perquisites**	**#1**	**#2**
2002	Nolan D. Archibald	$70,097	$20,663	$105,464	1	1
2001	Nolan D. Archibald	$0	$0	$0	0	1
2000	Nolan D. Archibald	$24,274	$31,057	$68,166	1	1
1999	Nolan D. Archibald	$36,806	$17,603	$67,763	1	1
1998	Nolan D. Archibald	$68,073	$0	$99,419	1	1
1997	Nolan D. Archibald	$19,899	$16,370	$50,182	1	1
1996	Nolan D. Archibald	$0	$0	$0	0	1
1995	Nolan D. Archibald	$31,222	$16,000	$56,978	1	1
1994	Nolan D. Archibald	$31,832	$18,578	$59,087	1	1
1993	Nolan D. Archibald	$33,500	$16,669	$58,066	1	1
Georgia Pacific Corp.		**Personal Aircraft Use**	**Financial Consulting**	**Automobile**	**#1**	**#2**
2002	Alston D. Correll	$52,495	$25,000	$0	1	1
2001	Alston D. Correll	$36,436	$25,000	$0	1	1
2000	Alston D. Correll	$16,293	$25,000	$0	1	1
1999	Alston D. Correll	$33,689	$25,000	$0	1	1
1998	Alston D. Correll	$0	$25,000	$0	0	1
1997	Alston D. Correll	$0	$0	$0	0	1
1996	Alston D. Correll	$46,973	$0	$0	1	1
1995	Alston D. Correll	$50,406	$22,500	$0	1	1
1994	Alston D. Correll	$0	$0	$0	0	1
1993	T. Marshall Hahn	$38,387	$0	$12,516	1	1

Figure 1
Firms with personal use of corporate aircraft by executives: 1993-2002

Personal use of corporate aircraft use for executives in a sample 2,340 observations for 237 large companies between 1993 and 2002. The indicator variable is coded 1 for years in which the company discloses aircraft use by the CEO or another top 5 executive. Data is obtained from annual company proxy statements. According to SEC rules, companies must report personal aircraft use if the company's cost of an executive's total perquisites exceeds $50,000 and personal aircraft use represents more than 25% of the total. A small number of companies elect to report lesser-valued personal aircraft use whose disclosure is not mandatory, and their data is included in the figure.

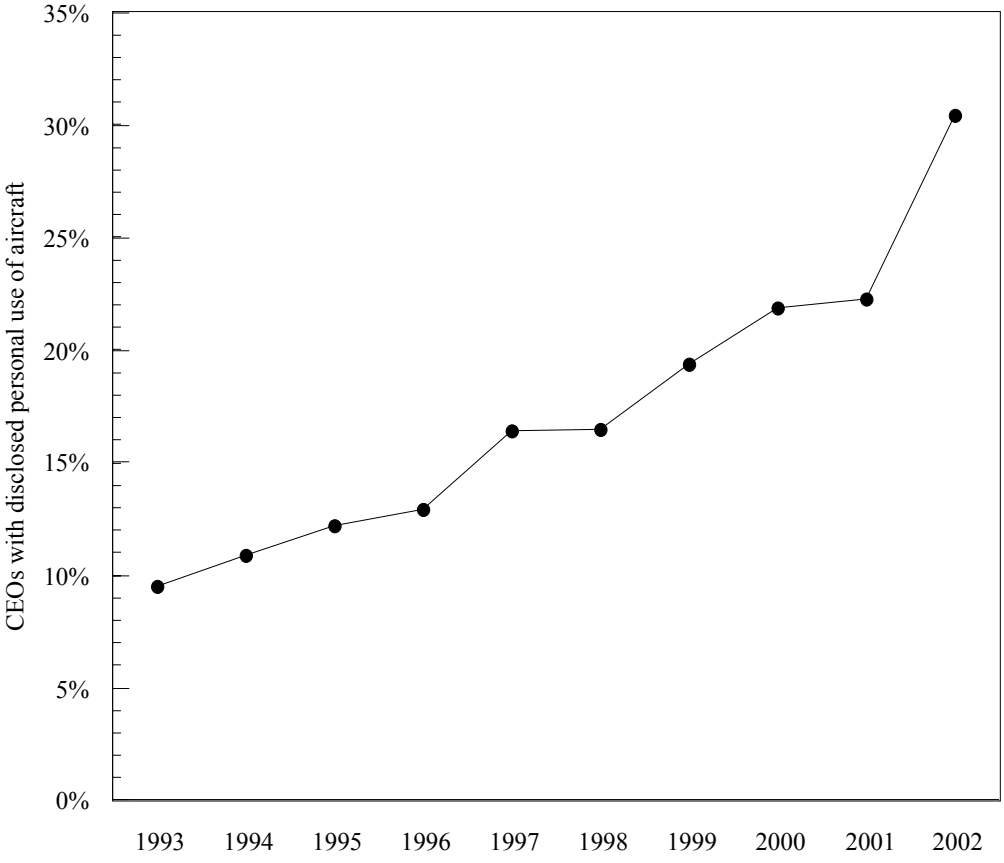

Figure 2
Cumulative abnormal stock returns for initial disclosures of CEOs' personal aircraft use

Mean cumulative abnormal stock returns for a sample of firms around the dates of proxy statement filings. The sample includes 63 firms that for the first time report personal use of company aircraft by the CEO. The observations are drawn from a data set of 237 large firms between 1993 and 2002. Abnormal stock returns are calculated using standard market model methodology. The event date, day 0 on the graph, is the date on which the proxy statement (or in two cases, a preliminary proxy statement) is filed electronically with the SEC.

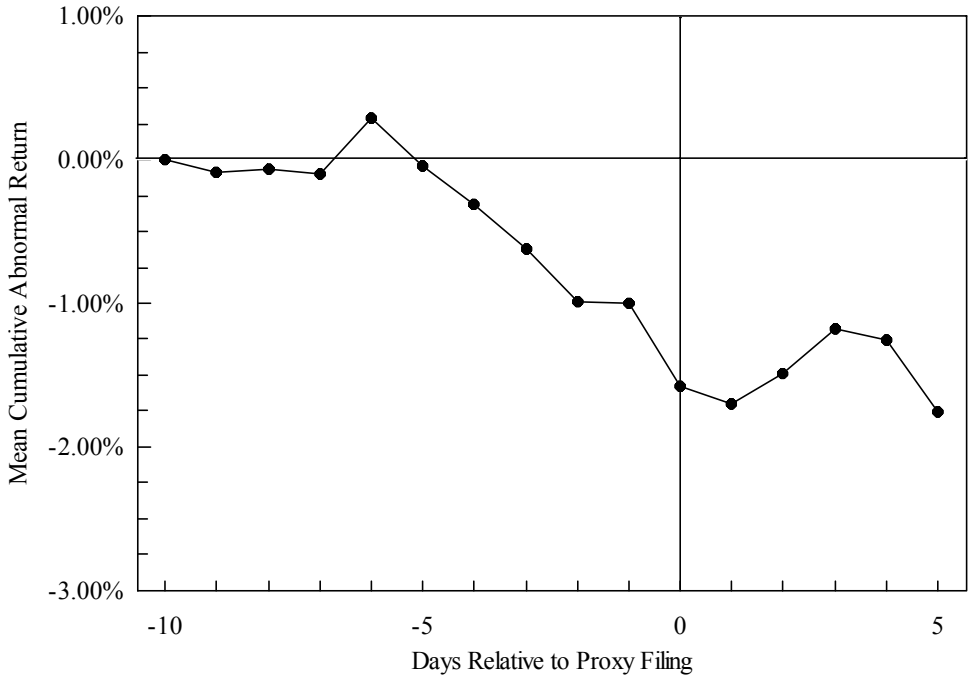

Figure 3
Abnormal stock returns of companies and CEOs' personal aircraft use

Annual abnormal stock returns for companies that permit and do not permit personal use of company aircraft by the CEO, in a sample of 237 large companies between 1993 and 2002. Abnormal stock returns are measured as coefficient estimates for dummy variables in Fama-French (1993) regressions identical to the left column of Table V. The two horizontal lines are the mean abnormal returns for companies that always and never award the aircraft fringe benefit to their CEOs during the sample period. The dotted line shows mean abnormal returns for companies that begin permitting personal use of aircraft during the sample period, with data tabulated for different periods relative to the first year of disclosed use.