Capitol Losses: The Mediocre Performance of Congressional Stock Portfolios, 2004-2008[1]

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Given the well-documented effects of public policy on financial markets, one would expect political insiders to be capable of enriching themselves through savvy investing. Consistent with this, two prior studies of stock trades in Congress conclude that members of both the House and Senate easily outperform the market, fueling the perception that corrupt "insider trading" is widespread in Congress. In this paper, we point out serious shortcomings in existing studies on congressional investing and carry out our own analysis using financial disclosure data from the 2004-2008 period. We find no evidence of either informed trading or above-market portfolio returns for Congress as a whole or any subset of members. In fact, the average investor in Congress underperformed the market by 2-3% annually during this period, suggesting that a substantial majority of members would have financially benefited from replacing their stock holdings with passive index funds. Our research suggests that widespread political "insider trading" in Congress is more myth than reality.

[1]Earlier versions of this paper were posted and presented as "Political Investing: The Common Stock Investments of Members of Congress 2004-2007" (first version April 9, 2009) and "Political Capital: The (Mostly) Mediocre Performance of Congressional Stock Portfolios, 2004-2008" (June 15, 2011).

I. Introduction

Do members of Congress enrich themselves by picking stocks based on privileged political information? There is substantial anecdotal evidence that they do. A recently-published and widely-discussed book (Schweizer; 2011) recounts dozens of examples of members of Congress making profitable stock trades while in possession of non-public information about policies affecting companies in their portfolios.[2] Senator John Kerry, for example, reportedly profited from well-timed investments in health care companies during periods when his subcommittee in the Senate was weighing health care legislation. Similarly, House Speaker John Boehner reportedly bought stock in health insurance companies just before the "public option" for health insurance was defeated in Congress, driving up the value of those stocks.[3]

Consistent with such anecdotes, the two existing academic studies on congressional investing (Ziobrowski et al. (2004) and Ziobrowski et al. (2011)) conclude that members of Congress have in recent decades earned very large abnormal returns. In congressional testimony, one of the authors summarized the findings of these studies saying: "The results of our studies were conclusive. Common stock investments made by Senators beat the market by approximately 1% per month or 12% per year from 1993 to 1998. Common stock investments made by members of the House of Representatives earned a lower abnormal return of approximately 1/2% per month or 6% per year from 1985 to 2001."[4] This purported ability to systematically beat market indices puts members of Congress in

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[2] Schweizer's book and subsequent appearance on *60 Minutes* (Nov. 13, 2011) were cited by many major media outlets including, for example, Peter J. Boyer, *The Daily Beast* , "The Wonk Who Slays Washington," Nov. 13, 2011; Anna Fifield, "Support grows for Congress insider trading ban," *Financial Times*, Nov. 20, 2011; "Should Insider Trading Laws Apply to Congress?" *Fox News's The O'Reilly Factor*, Nov. 21, 2011; Tamara Keith "Congressional Stock Trades Get Scrutiny" *National Public Radio*, All Things Considered, November 17, 2011; Brian Tumulty "Measure to ban Congressional insider trading gains steam" *USA Today*, November 16, 2011; Tom Hamburger "Reports revive debate over congressional stock deals" *Los Angeles Times* November 14, 2011.

[3]Other anecdotal evidence of "insider trading" in Congress appears in Joy Ward, "Taking Stock in Congress", *Mother Jones*, Sept./Oct. 1995; James Rowley, "Durbin Invests With Buffett After Funds Sale Amid Market Plunge," Bloomberg, June 13, 2009; and Brody Mullins, Tom McGinty, and Jason Zweig, "Congressional Staffers Gain From Trading in Stocks," *Wall Street Journal*, October 11, 2010.

[4]Alan Ziobrowski testified before the House Financial Services Committee on July 13, 2009. The transcript is available at `http://www.house.gov/apps/list/hearing/financialsvcs_dem/ziobrowski_testimony.pdf`, accessed Nov 29, 2011.

a class of their own as investors, outperforming hedge fund managers and even corporate insiders. Combined with anecdotes of well-timed trades made by political insiders, these findings appear to have convinced much of the public that unethical congressional "insider trading" is widespread, fueling calls for reform in Congress.[5]

Despite the apparent public consensus, the evidence for congressional "insider trading" is in fact surprisingly weak. Clearly, isolated well-timed trades cannot be taken to prove corrupt behavior, considering that we would expect occasional good timing even if members of Congress traded stocks purely at random. The two existing studies by Ziobrowski et al. (2004) and Ziobrowski et al. (2011) take a more systematic approach, but a close reading of both studies reveals that the main results are fragile and inconclusive at best; in fact, although the studies have been interpreted by their authors, the media, and policymakers as revealing large systematic information advantages enjoyed by members of Congress, for most model specifications the published tables actually show excess returns statistically indistinguishable from zero. Further, no existing research measures the return on politicians' actual holdings; instead, these papers study only transactions, thus overlooking most of what actually appears in members' stock portfolios.

In this study we address these and other gaps in existing research and carry out the most comprehensive analysis of congressional investing yet conducted.[6] Drawing upon financial disclosure forms, we reconstruct the stock portfolios of all members of Congress for the 2004-2008 period. We then apply state-of-the-art statistical methods from empirical finance to systematically assess members' portfolio performance. What we find is that,

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[5] Articles and broadcasts citing Ziobrowski et al. (2004) include *The New Yorker*'s "Financial Page" of October 31, 2005; "An Ethics Quagmire: Senators Beat the Stock Market – and Get Rich — With Insider Information," *Washington Spectator* January 1, 2006; "Nieman Watchdog – Questions the press should ask," March 10, 2006; R. Foster Winans, "Let Everyone Use What Wall Street Knows," *The New York Times*, March 13, 2007; NPR's *Marketplace* on September 17, 2009 (`http://marketplace.publicradio.org/display/web/2009/09/17/pm-inside-dope/`); Brody Mullins and Jason Zweig, "For Bill on Lawmaker Trading, Delay Is Long and Short of It", *The Wall Street Journal*, May 5, 2010; "Policy, portfolios and the investor lawmaker", *The Washington Post*, November 23, 2009; and Megan McArdle, "Capitol Gains: Are members of Congress guilty of insider trading - and does it matter?", *The Atlantic Magazine*, Nov. 2011.

[6]In a companion paper we investigate the relationship between politicians' political connections to firms and their investments in those firms (Eggers and Hainmueller; 2011).

contrary to prior research and the popular view of politicians as being corrupt and savvy, members of Congress in recent years have been rather poor investors: the average portfolio underperformed the market index by 2-3% per year (before expenses) during the period we examine. In dollar terms, $100 invested in an index fund in January 2004 would have yielded $80 by the end of 2008; the same $100 invested like the average investor in Congress would have yielded less than $70. Put differently, in aggregate members of Congress would have preserved about $68 million in wealth had they followed basic investment advice and simply invested in a passive index fund.[7]

We find underperformance using a variety of specifications and weighting approaches, and not just for Congress as a whole but separately for both the House and the Senate, Democrats and Republicans, members of power committees, and groups of members stratified by wealth, portfolio size, and turnover. We also carry out our analyses on individual members and confirm that member-level excess returns are distributed symmetrically and centered below zero, which further increases our confidence that the underperformance we find is a widespread pattern and not limited to a few outliers. Performance relative to the market was if anything slightly better in 2004-2006 than in 2007-2008, suggesting that on average members of Congress did not capitalize on the unusually active role of the government in the economy during the latter period. Finally, we find no evidence of excess returns using the transaction-based methodology of earlier studies, indicating that members of Congress do not enjoy a systematic informational advantage in trading stocks.

In contrast to previous research on congressional investing, which reported investment performance in Congress so good that it could be explained only by unethical or even illegal behavior, our analysis suggests that investors in Congress are less like corporate insiders, who Jeng et al. (2003) find earn large excess returns, and more like average individuals,

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[7]We arrive at this figure as follows. First we calculate the average raw return on congressional portfolios in each month from January 2004 to December 2008. We then calculate the ending value of a portfolio that earns this return and starts in January, 2004, at $493 million (the total value of congressional stock portfolios as of January, 2004). We then subtract this ending value from the equivalent ending value of the same portfolio earning the value-weighted market return over the same period. This assumes that underperformance was uniform across members of different portfolio sizes, a hypothesis that is not contradicted by our analysis.

whose cognitive biases and resulting poor performance have been documented in a large number of studies (e.g. Odean; 1999; Barber and Odean; 2000, 2008; Barber et al.; 2009; Goetzmann and Kumar; 2008). Overall the evidence strongly suggests that members of Congress are more remarkable for their mediocrity as investors rather than their corruption.

Our findings have clear implications for both ongoing policy debates and the public understanding of corruption in American political institutions. Concerns about congressional insider trading provoked by journalistic reports and previous academic studies have led to the repeated introduction of legislation to forbid members from trading stocks on the basis of political "insider information,"[8] as well as more drastic proposals to curb congressional privileges.[9] These regulations may be warranted even if the unethical behavior they seek to limit is rare, but our findings suggest that the urgency recently devoted to the issue may be excessive. Perhaps more importantly, the reputation of Congress has been tarnished by poorly-supported allegations of unethical investing behavior, with the likely effect that citizens will be even less inclined to trust political elites or look for solutions within existing political institutions. In confronting the conventional view with contrary empirical evidence, we hope to provide a corrective.

Our research on congressional investing also speaks to a literature in political science and economics about the rewards of political office and how those rewards affect the quality of political leadership. Several empirical studies have shown that firms benefit from personal and financial ties to politicians, usually in the form of higher stock market valuations;[10] a more recent strain of research has begun to measure how much politicians themselves benefit financially from serving in office.[11] This research is important not just for assessing

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[8]The "Stop Trading on Congressional Knowledge" (STOCK) Act, which which would explicitly forbid members of Congress from trading on the basis of political "inside information," was originally introduced in 2006 by Representatives Louise Slaughter and Brian Baird. Shortly after the *60 Minutes* program aired in November 2011, a similar bill was introduced in the Senate and the House bill attracted dozens of cosponsors. These bills are getting hearings, and the House Ethics Committee issued a memo reminding lawmakers that insider trading could violate the law and House rules. Larry Margasak "Congress Looking At Insider Trading Laws ," *Huffington Post*, November 16, 2011.December 2, 2011.

[9]Patrick O'Connor and Brody Mullins, "Perry Faults Stock Deals in Congress," *Wall Street Journal*, November 16, 2011.

[10]Roberts (1990); Jayachandran (2006); Goldman et al. (2009, 2008); Fisman (2001); Johnson and Mitton (2003); Khwaja and Mian (2005); Faccio (2006); Ferguson and Voth (2008).

[11]Diermeier et al. (2005); Eggers and Hainmueller (2009); Lenz and Lim (2010); Querubin and Snyder

the degree of corrupt and self-serving behavior among political elites, but also because the extent and nature of rewards (both financial and otherwise) from serving in political office clearly have implications for who enters politics (Caselli and Morelli; 2004; Messner and Polborn; 2004; Besley; 2005). Our research extends previous empirical work by investigating an additional channel through which politicians may extract financial rewards from political service, but it also illuminates how disclosure and media scrutiny may affect the non-financial (i.e. ego) rents of serving in office, a question to which we return in the conclusion.

II. Congressional Investing

In this section we review existing work that shapes our expectations about how well the stock portfolios of members of Congress may be expected to perform. We begin with research that examines the opportunities and constraints we might expect politicians to face as investors, and then turn to existing empirical work that specifically examines the performance of politicians' investments.

A. Opportunities and Constraints

Despite evidence that both amateur and professional investors do not systematically beat market indices, recent research in political economy provides ample reason to suspect that members of Congress could be extraordinarily good investors. A growing list of studies show that firm values are very sensitive to political factors. Roberts (1990) finds that the death of the ranking Democrat on the Senate Armed Service Committee resulted in lower stock valuations for firms located in the senator's state and higher stock valuations for firms located in the state of his successor. Similarly, Jayachandran (2006) finds that the market value of Republican-connected firms dropped when Senator Jeffords unexpectedly departed the Republican Party in 2001, shifting the Senate majority to the Democrats. And Goldman et al. (2009) and Goldman et al. (2008) show that companies that announce the appointment of a politically-connected director experience a positive abnormal return and that politically connected firms are more likely to secure procurement contracts. Compara-

(2011); Bhavnani (2011).

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ble evidence abounds for other countries as well (Fisman; 2001; Johnson and Mitton; 2003; Khwaja and Mian; 2005; Faccio; 2006; Ferguson and Voth; 2008). The picture presented by all of these studies is that politicians can significantly impact firm values. Presumably, politicians know about the impact of their own actions and those of other politicians with whom they work. If these studies do not greatly overstate the impact of politicians on stock prices, an investment-minded member of Congress could handsomely profit from information arbitrage.

Politicians may also enjoy informational advantages simply by being in close contact with corporate executives and industry lobbyists as part of their legislating and fundraising routines. Recent research in empirical finance suggests that mutual fund managers do better when they invest in companies to which they are connected through personal ties to executives (Cohen et al.; 2008). Members of Congress necessarily have large personal networks and frequent contact with corporate executives and lobbyists. Even a member of Congress who does take advantage of advance knowledge of legislative events may be able to profit as an investor simply by taking advantage of information they gather through their personal networks and political contacts.

While members of Congress likely enjoy considerable information advantages because of their political power, they also face several important constraints arising from their political positions. First, their investments are public and, as demonstrated by occasional journalistic exposés of Congressional insider trading, the appearance of unethical financial behavior creates political difficulties for incumbent politicians. Second, ethics rules state broadly that members should not financially profit from their political positions (*Code of Conduct*, 2005), meaning that members of Congress who invest very aggressively might face ethics charges in addition to journalistic scrutiny.[12] Third, politicians may use their investments to attain political rather than financial ends (Eggers and Hainmueller; 2011; Tahoun;

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[12]By contrast, we know of no such general prohibitions that would apply to academic researchers, for example, whose personal financial investments are not publicly disclosed. There is scholarly disagreement about the extent to which securities laws regulating insider trading apply to the use of advance knowledge of political events by political insiders. For more on policy issues surrounding stock trading by members of Congress, see George (2008); Jerke (2010); Bainbridge (2010); Nagy (2011).

2011). For example, a politician seeking political support and campaign contributions from a corporation may buy stock in that corporation to align her policy preferences with those of the firm. To the extent that politicians in fact pursue political goals through their portfolios, we may expect average returns to be modest, since basic portfolio theory tells us that restricting possible investments (particularly based on non-financial considerations) cannot enhance returns.

A final constraint is provided by the sheer difficulty of beating the market. Extant research in empirical fiance has shown that investment professionals rarely beat the market, and individuals perform if anything even worse (Odean; 1999; Barber and Odean; 2000, 2008; Barber et al.; 2009; Goetzmann and Kumar; 2008). Fundamentally, new information is quickly absorbed into equity prices, making it difficult for anyone to systematically exploit information arbitrage opportunities. Even the information advantages of politicians may be quickly arbitraged away, given the roughly $100 million-per-year "political intelligence" industry that has developed in Washington, D.C.[13]

B. Existing Empirical Evidence

Despite the outrage over potential congressional insider trading, we have a very limited understanding about whether members of Congress do indeed convert their political positions into superior portfolio returns. The only published studies systematically examining congressional stock trading are by Ziobrowski et al. (2004), which considered stock trades by Senators during the 1993-1998 period, and Ziobrowski et al. (2011), which examined trades by House members for the odd numbered years between 1985 and 2001. These studies examine whether trades made by members of Congress showed systematically good timing. The main reported finding in Ziobrowski et al. (2004) is that a trade-weighted hedged portfolio that holds stocks senators buy and sells short the stocks they sell (both for fixed 12-month holding periods) beats the market by 12% annually – a return that widely exceeds the returns of any other investor group including corporate insiders, hedge

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[13]Brody Mullins and Susan Pulliam. "Hedge Funds Pay Top Dollar for Washington Intelligence" *The Wall Street Journal*, October 4, 2011.

fund managers, or mutual fund managers. Such high returns suggest the systematic use of non-public material information, leading the authors to conclude that Senators took advantage of a "definite informational advantage" over other investors. Ziobrowski et al. (2011) comes to similar conclusion when looking at members of the House. The main reported finding in this study is that a portfolio of stocks purchased by House members (held for a fixed 12 months after the transaction) beats the market by approximately 6% annually.

In testimony before the House Financial Services Committee in July of 2009, Alan Ziobrowski summarized the findings of the two studies as follows:

> "The results of our studies were conclusive. Common stock investments made by Senators beat the market by approximately 1% per month or 12% per year from 1993 to 1998. Common stock investments made by members of the House of Representatives earned a lower abnormal return of approximately 1/2% per month or 6% per year from 1985 to 2001." [14]

The media has followed his lead, widely reporting that Senators' portfolios beat the market by 12% and House members' portfolios by 6%.[15]

There are at least four reasons why it would be premature to conclude based on these studies that there exists widespread insider trading in Congress.

First and most obviously, the data that existing studies draw upon is over a decade old, which begs the question of whether congressional investment behavior has changed over time. Second, the authors of these studies have refused to share their data with other researchers, so that the results cannot be verified without repeating the extremely time-consuming task of transcribing and processing hundreds of financial disclosure forms.[16]

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[14]Available at `http://www.house.gov/apps/list/hearing/financialsvcs_dem/ziobrowski_testimony.pdf`, accessed Sept. 8, 2010).

[15]For example, Megan McArdle, "Capitol Gains: Are members of Congress guilty of insider trading - and does it matter?", *The Atlantic Magazine*, Nov. 2011; Jim Galloway, "Insider trading is an old issue," *Atlanta Journal-Constitution*, Nov. 17, 2011, pg . 1B; Isabel Vincent and Melissa Klein, "Gilibrand's stock crock," *New York Post*, Nov. 20, 2011; Peter Schweitzer, *Throw Them All Out*, Houghton Mifflin Harcourt, 2011, pg. xviii.

[16]Note that, according to the National Research Council, "scientists have a special responsibility to share data as quickly and as widely as possible when the data are or will become relevant to public policy" (Council; 1985, pg. 27).

Third, the existing studies are unable to say much about the performance of members' actual stock portfolios because of their methodological approach. Both (Ziobrowski et al.; 2004) and (Ziobrowski et al.; 2011) rely on transaction-based portfolio analysis, which assesses the performance of synthetic portfolios that hold the stocks members buy and sell for fixed periods after the transaction. For example, Ziobrowski et al. (2004)'s finding of 12% excess returns in the Senate does not in fact measure the actual gains experienced by members of the Senate, but rather the gains that one would enjoy if one were to mimic senators' purchases and hold them for exactly 12 months, *and* sell short the stocks that senators sell, repurchasing them exactly 12 months later. While this approach can provide useful information about whether investors' trades were well-timed, it does not measure the return on the senators' actual portfolios, in which one would of course find varying holding periods and no pattern of short sales coinciding with stock sales.[17]

The fourth and most important reason for skepticism is that, even aside from the limitations just discussed, these studies do not in fact conclusively show an information advantage in congressional stock trading. In fact, a more careful reading of the results suggests that the headline claim that senators beat the market by 12% and representatives by 6% is fundamentally misleading: not only do these performance figures refer to synthetic portfolios rather than portfolios that members actually held (as implied by Ziobrowski's congressional testimony), but the two figures also refer to different estimands that appear to be carefully chosen from many possibly specifications to maximize the apparent degree of informational advantage in Congress. To give readers a sense of the full range of reported results in Ziobrowski et al. (2004) and Ziobrowski et al. (2011), Table 1 presents the excess return on the transaction-based portfolios as reported in the two papers.[18]

The upper panel of Table 1 reports the results from the Senate study. The hedged port-

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[17]As another indication of the limits of transaction-based portfolio analysis, we calculate that the median turnover (i.e. buys plus sells divided by average holdings) in congressional portfolios in 2004-2008 is about 23% per year. This suggests that the large majority of members' stock holdings do not appear in their transactions in a given year, and also that holding periods are on average longer than the 12-month period assumed in the Ziobrowski studies. For both reasons, synthetic portfolios built from transactions are unlikely to see returns similar to those of the actual portfolios.

[18]These are based on Table 2 in Ziobrowski et al. (2004) and Table 3 in Ziobrowski et al. (2011). All estimates have been annualized for easier interpretation.

folios, which capture the difference in performance between senators' buy and sell portfolios and are the central quantity of interest in transaction-based performance analysis (Odean; 1999; Barber et al.; 2009; Seasholes and Zhu; 2010), appear in the final two columns; they significantly beat the market in 3 out of 4 specifications when senators are weighted by dollar value. (The aggregate, trade-weighted specification is the one that generates the 12.5% annualized return on which Ziobrowski et al. (2004) focuses.) When senators are weighted equally instead, as in rows 3 and 4 of Table 1, the hedged excess returns are insignificant in 3 out of 4 specifications, indicating that we cannot reject the null hypothesis of no informational advantage for the average senator. The sensitivity of the main findings to how members are weighted is not surprising because, as noted by the authors, just four senators account for nearly half of the trades, and therefore high performance by just a few individuals could explain the aggregate results.[19] Similarly, excess returns are only apparent (both in the hedged portfolio and in the buy portfolio) when the trades are weighted by their dollar value, indicating that we cannot reject the null hypothesis of zero excess return on the average trade. This is again consistent with the view that just a few traders (or even a few trades) might explain the aggregate, trade-weighted result on which the paper focuses. In short, the 12% excess return finding of the Senate study is indeed remarkable, but returns of this magnitude are only obtained for one out of four possible weighting approaches, indicating that it might result from either chance or a narrowly-confined trading acumen rather than systematic information advantages. The point estimates of the excess return using other weighting approaches suggest a more modest but still large informational advantage, but the uncertainty around these estimates is too low to allow us reject the null hypothesis of no trading acumen.[20]

The lower panel of Table 1 shows that the published results for the House study are inconsistent with the Senate study, in that here there is no evidence of excess returns in

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[19]Accordingly, the subgroup analysis in (Ziobrowski et al.; 2004) yields strikingly different returns for different subsets of the Senate, again suggesting that the performance of a small number of individuals may drive the headline result.

[20]The precision of the estimates may also be somewhat inflated, given that the standard errors in Ziobrowski et al. (2004) do not appear to correct for heteroscedasticity or serial correlation.

the hedged portfolio analysis on which the Senate study focuses. The "buy" portfolio beats the market if trades are weighted by their dollar value but not if they are weighted equally; again, by the authors' own admission, the value-weighted results may depend on a few traders with large portfolios. Even more strikingly, the trade-weighted "sell" portfolios also show considerable positive returns (statistically significant in one case), indicating that representatives chose to sell stocks that subsequently outperformed the market by an average of about 5% per year; this is the opposite of what one would expect from well-informed insiders. Most importantly, in a stark deviation from the Senate study where the hedged portfolios provided the headline findings, no returns for the hedged portfolio are reported in the House study,[21] but by our own estimates (based on the difference between the return on the "buy" and "sell" portfolios) the returns on the hedged portfolio in the House would be on the order of 0-2% annually, and not statistically distinguishable from zero. In short, by the standards of Ziobrowski et al. (2004), and contrary to Ziobrowski's congressional testimony, Ziobrowski et al. (2011)'s reported results imply that House members do not in fact display unusually good trading acumen.

To put the point another way, the top two panels of Figure 1 graphically summarize the excess returns on hedged portfolios for the Senate and House as reported in Ziobrowski et al. (2004) and Ziobrowski et al. (2011).[22] The 12% finding for the Senate is the largest estimate shown. The other seven estimates for the Senate, which use different models and different weightings across members and trades, are lower in magnitude and, although generally positive, mostly not statistically distinguishable from zero. The point estimates for the hedged portfolios in the House (imputed where possible as the difference between the return on the buy and sell portfolio) are still smaller, and none are statistically significant.

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[21]The returns on sell portfolios for the average member are also not reported.

[22]Point estimates on hedged portfolios are annualized from reported alphas; in the case of the House study, where the hedged analysis is not reported, this is estimated where possible as the difference between the buy and sell portfolio. Standard errors are not reported in either paper. We impute standard errors as follows. For estimates reported as statistically significant, we impute a standard error that would result in a p-value in the middle of the reported range (e.g. a standard error that would result in a p-value of .075, if the estimate is reported as significant at the .1 level). For other estimates, we impute the maximum possible standard error of the most similar statistically significant estimate, e.g. the same model with a different weighting, or the same weighting with a different model.

As this figure indicates, the sensitivity of the Senate findings to different weightings and the absence of any evidence of informed trading in the House makes it difficult to rule out based on existing research the null hypothesis of no informed trading in Congress.

Existing work thus leaves open the question of whether members of Congress financially benefit from their investing activities. Political economy research on the intimate connection between political events and financial outcomes suggests that politicians may indeed have unusual advantages as investors, but politicians also face public scrutiny and political challenges that may hinder their performance. Broader research on investing behavior meanwhile suggests that even people with apparent information advantages do not systematically beat the market. Prior empirical studies, widely cited as conclusive evidence of political "insider trading," in fact present a much murkier picture than has been appreciated. No research has examined the return on members' actual portfolios rather than the return on synthetic portfolios constructed from trades alone. We therefore revisit the question, assembling a new dataset in order to carry out a more comprehensive analysis of congressional stock investments than has previously been attempted.

III. Data

As a result of the 1978 Ethics in Government Act, members of the U.S. Senate and House of Representatives are required to disclose their stock investments (as well as real estate and other investments, liabilities, and outside income and employment) and those of spouses and dependent children in annual filings known as Financial Disclosure Reports. We use the common stock holdings and transactions reported in the disclosure forms between January 2004 and December 2008 to reconstruct members' portfolios and then evaluate the performance of those portfolios using modern methods from empirical finance.[23]

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[23]Our analysis includes all holdings and trades reported by members, including those owned by spouses and dependent children. Members may also choose to create qualified blind trusts, which are managed on their behalf and whose holdings are unknown to the member. In our data 20 members report qualified blind trusts. It is impossible to know from the disclosure forms how much a member personally directs his or her investments, but unless a member uses a blind trust it would be easy to pass on information to a money manager.

A. Reconstructing Portfolios from Disclosure Forms

Members of Congress are required to submit disclosure reports each spring, detailing their year-end holdings as well as all transactions made during the year. The Center for Responsive Politics transcribes these reports, beginning with 2004, and makes the data freely available on its website (`www.opensecrets.org`). We thus received the data as a pair of spreadsheets, one with a row for each of the 111,101 transactions recorded and another with a row for each of the 169,828 year-end holdings recorded.

The first task in converting this raw data to stock portfolios was to identify the companies in which members hold stocks. The disclosure reports do not identify holdings in standardized ways (e.g. an investment in Bank of America common stock may be described as "Bank of America," "Bank America Common Stock," "Banc of America," or "BOA"); we used search utilities provided by Google Finance and the Center for Research on Security Prices (CRSP) as well as manual checks to link variously described assets to actual companies. Even more challenging, the descriptions may not precisely distinguish between stock holdings and other types of assets such as corporate bonds, mortgages, auto loans, or bank accounts. To reduce the risk of misclassifying savings accounts and other financial instruments as stock investments, we hand-checked the disclosure report for each apparent financial stock to attempt to distinguish stocks from other types of assets based on other clues in the forms, such as columns reporting dividend or investment income.[24]

The next task was to impute a dollar value for each holding and trade reported. Members are only required to report the value of their investments in broad value bands (e.g. $15,000 – $50,000) rather than exact dollar amounts.[25] In order to impute precise values for investments reported in these bands, we took advantage of the fact that we do know the precise value of a sizable minority of reported investments — those cases in which a member submitted an annual statement from a bank or investment manager rather than

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[24]Between these checks and other manual checks, we estimate that we and our research assistants spent well over 250 combined hours cleaning and preparing the data for analysis.

[25]Value band cutpoints are at $1,000, $15,000, $50,000, $100,000, $250,000, $500,000, $1,000,000, $5,000,000, $10,000,000 and $25,000,000, and a top category captures all investments of $50,000,000 or more in value.

filling out the official forms.[26] We used these investments to fit a distribution of precise values and, for each investment for which we know only the band, we impute the expected value of the precise-value distribution within that band.[27] For the highest band (investments over \$50,000,000), of which there are fewer than 100 holdings and 5 trades in our estimation sample, we impute the value of \$50,000,000.

Having linked each holding and trade to a company and imputed dollar values, it remained to reconstruct the day-by-day stock portfolio. Our approach in reconstructing a portfolio from the disclosure reports was to start at the last day of each year, for which the reports provide the entire portfolio (i.e. the year-end holdings), and work backward to the beginning of the year, adjusting the portfolio each day to reflect purchases and sales as well as fluctuations in value due to security price changes. (In other words, each portfolio is rebalanced on a daily basis.[28]) For example, suppose a member reported holding \$10,000 of stock in Company A at the end of the year and reported purchasing \$5,000 of stock in Company A on June 1. This member's portfolio on January 1 of that year is estimated by calculating what \$10,000 in Company A stock was worth on June 1 (based on the return between June 1 and the end of the year), subtracting \$5,000, and then calculating what that value was worth on January 1. In this way we calculate dollar value holdings for every member of every stock on each day between January 1, 2004 and December 31, 2008.

B. A Glimpse at Congressional Portfolios

Our data covers disclosure reports from 650 members who served in the House and Senate between 2004 and 2008. Of these members, 422 reported holding a stock listed on NYSE,

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[26]This information is available for about 25% of the transactions in the dataset and about 8% of the year-end holdings. The members who reported exact values tended to have larger portfolio sizes overall, but there is no reason to think that within value bands the value of their assets and transactions would differ greatly from those of members who did not report exact values. Consistent with this, when we redo the imputation with a subset of members who report exact values and who are matched to members not reporting exact values, the imputed values differ hardly at all from those imputed based on the full sample of members who report exact values.

[27]This approach is inspired by the imputation method proposed in Milyo and Groseclose (1999).

[28]Barber and Odean (2000) show that ignoring intra-month timing of trades makes little difference in their overall return calculations, but we see no reason not to calculate daily returns, particularly given the short time-frame in which information arbitrage would likely take place.

NASDAQ, or AMEX at some point during that period. Overall the dataset includes 29,778 reported end-of-year holdings and 48,309 reported transactions. A total of 2,581 companies are represented in the dataset; together these companies make up about 94% of the total capitalization of these three exchanges over our sample period.

Table 2 provides summary statistics describing the portfolios of the 422 members of Congress whose investments appear in our dataset. For each member, we calculate the value and number of holdings and transactions in each year and then average across years to get member-level averages. As indicated in the left panel of Table 2, member portfolio sizes range from $501 (for a member who reported a single stock in the lowest value band) to $140 million, the average reported by Jane Harman.[29] The distribution of stock holdings is strongly skewed: the median member on average holds stocks worth about $93,000 in 5 stocks, while the average member holds about $1.7 million in 19 stocks. The right panel of Table 2 indicates that the distribution of annual transactions across members is also quite right-skewed: the average member buys and sells 18 and 22 stocks per year (respectively), worth about $402,000 and $619,000; the median member buys and sells 2 and 3 stocks worth about $17,000 and $40,000.

The presence of a number of very large portfolios in the data suggests that conclusions about the performance of Congress as a whole will be sensitive to whether individual-level performances are weighted equally across members or by portfolio size. As described below, our analysis focuses on the average member-month, but we also provide estimates that weight by value and number of holdings; in the appendix, we also provide estimates of the return on aggregate portfolios that are either weighted equally across members or weighted by portfolio value.

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[29]The performance of Jane Harman's portfolio was unusually poor, largely due to a $50+ million position in Harman Industries that dropped about 1/3 in value in January of 2008 after the release of negative news (see "Harman Shares Tumble After Forecast," *Reuters*, Jan 14, 2008). Because of the large size of her portfolio and the consequent large downward influence of her performance on aggregate excess returns, we exclude her from subsequent analyses unless otherwise noted. Including Harman not surprisingly has little effect on estimates of the performance of the average member but yield lower estimated performance when we weight by portfolio size.

IV. Do Members Beat the Market?

We now turn to the task of assessing the performance of the common stock investments of members of Congress between 2004 and 2008.

A. Methods

To compare Congressional stock portfolios to the market benchmark, we adopt the standard calendar-time approach (e.g. Barber and Odean (2000)) of regressing risk-adjusted member returns on a set of controls including the return on a market index. Following Hoechle et al. (2009) and Seasholes and Zhu (2010) we carry out our main analysis via a panel regression that estimates the average monthly excess return across members and time, conditional on the standard controls.

In particular, we aggregate each member's daily portfolio returns to the monthly level and then fit the widely-used Carhart Four-Factor model (an extension of the Fama-French Three-Factor model):

$$R_{i,t} - R_t^f = \alpha + \beta_1\left(R_t^m - R_t^f\right) + \beta_2\text{SMB}_t + \beta_3\text{HML}_t + \beta_4\text{MOM}_t + \epsilon_{i,t}$$

where $R_{i,t}$ is the return on the portfolio of member i in month t, R_t^m is the return on a market index, R_t^f is the "risk-free rate" or return on U.S. Treasury Bills, and the other controls are passive portfolios noted in the empirical finance literature for diverging from the overall market. SMB_t is the return on a hedged portfolio that is long in small companies and short in big companies ("small-minus-big"), HML_t is the return on a hedged portfolio that is long in high book-to-market companies and short in low book-to-market companies ("high-minus-low"), and MOM_t (Carhart; 1997) is the return on a hedged portfolio that is long in companies with the best performance in the previous year and short in the companies with the worst performance in the previous year. We obtained each control series and data on the risk-free rate from Kenneth R. French's website.[30] The key quantity of interest in this panel regression is the intercept α which identifies that monthly average abnormal portfolio return across members. In order to account for the cross-sectional correlation in

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[30]http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

portfolio returns we compute Rogers standard errors clustered by month (see Seasholes and Zhu (2010)).

This approach is our preferred specification, but for the sake of robustness and comparability with previous studies we carry out a variety of specifications and weighting schemes and, because the findings from the various specifications are quite similar, we report the results in the appendix.[31] The key point is that the findings from the various specifications we employ produce the same conclusions about the investing performance of members of Congress, which means that the reader can focus on the smaller set of main results we report.

B. RESULTS: OVERALL PERFORMANCE

Before looking at abnormal returns estimated by market models, we display in Figure 2 the cumulative raw returns for the average congressional portfolio over our period of study. The figure depicts the value over time of $100 invested in the CRSP market index (a passive, value-weighted portfolio of stocks on the NYSE, NASDAQ, and AMEX exchanges) and the average (i.e. equal-weighted aggregate) congressional portfolio.[32] The average Congressional portfolio clearly does considerably worse than the market index: $100 invested in a market index (solid line) in January of 2004 would be worth about $80 by the end of 2008, whereas invested in the average congressional portfolio (dotted line) it would be worth only around $69. The underperformance is not limited to the period of decline and

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[31]We run the panel analysis using the CAPM model, which includes the market index as a single control. We also carry out all analyses with the approach employed by Barber and Odean (2000), Ziobrowski et al. (2004), and Ziobrowski et al. (2011), among others, which involves aggregating all individual portfolio returns up to a single time series and then running the Carhart Four-Factor or CAPM regression. In these aggregate analyses, we report results employing two approaches for aggregating member portfolio returns - one that weights each member equally and another that weights each member by her portfolio size. As shown in Hoechle et al. (2009) the panel approach on which we focus is numerically identical to the equal-weighted aggregate portfolio approach as long as the panel is balanced; when it is not, the weighting implied by the panel regression is more natural in our view. (The panel regression weights every investor-month equally, while the aggregated approach weights every month equally regardless of how many investors are present in each month. Standard errors also differ between the panel and aggregated approach depending on the intra-cluster correlation in the panel regression. See Hoechle et al. (2009) for a discussion.)

[32]For each month, we compute each member's monthly raw portfolio return and average across members; the figure depicts the compound return on this series of monthly returns.

crash in 2007 and 2008; at the market peak in 2007 the congressional portfolio was already about 10% below the market on a cumulative basis since the start of 2004. Based on this cumulative return and the size of the aggregate congressional portfolio in 2004, we estimate that members of Congress collectively could have avoided about $68 million in losses by exchanging their stock holdings for a passive index fund.

Models 1-4 of Table 3 provide our main estimates of the abnormal returns. The results are consistent with the graphical analysis. Model 1 shows that over our study period, members on average underperformed the market about .23 percentage points per month ($p = .02$), which annualizes to a yearly abnormal return of about -2.8% with a .95 confidence interval of $[-4.9\%; -.5\%]$. This result is robust across various specifications. The poor performance is very similar when we use a random effects model with varying intercepts (model 2), weight the regression by the number of stock holdings per member-month (model 3), or weight the regression by the average value of the stock holdings per member-month (model 4). To check the robustness of this result, models 1-4 in Table A.1 in the appendix replicate the same models using the CAPM model instead of the Carhart Four-Factor model and the results are very similar. Table A.2 in the appendix replicates the overall portfolio returns using the aggregated data regression approach used in Barber and Odean (2000) and Ziobrowski et al. (2004), among others. The results are very similar both in terms of magnitude and significance; both the value-weighted and the equal-weighted aggregate congressional portfolio underperform the market in the Carhart and the CAPM model.

C. PERFORMANCE IN SUBGROUPS

How widespread is this pattern of underperformance? Models 5-26 in Table 3 report the abnormal return estimates for relevant subsets of Congress. The monthly alpha estimates along with their .95 confidence interval are also visualized in Figure 3. The results indicate that the overall underperformance is very consistent across subgroups. Republicans do slightly better than Democrats (although the difference in intercepts is not quite significant

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at conventional levels ($p = .22$))[33] House members do slightly worse than Senators, but again we do not reject the null of no difference. Members on power committees in the House or Senate[34] do slightly better than other members, but the differences are small and statistically insignificant. The estimated excess returns are also similar for the 2004-2006 period, when the market was rising, and the 2007-2008 period, when the market fell and the government began to intervene more heavily in the economy. There are also no consistent differences across the group of members when we stratify the sample by seniority, net worth, portfolio size (using three equal sized bins for low, medium, and high), or pre-congressional careers.[35] The best-performing subgroup appears to be members who owned businesses before entering Congress (who we estimate beat the market by about .5% per year), but even this group does not outperform either the market or other investors at conventional levels.[36] The comparable subgroup analyses using the CAPM model (presented in table A.1 in the appendix) and the aggregated data approach (table A.2) similarly show consistent underperformance across subgroups.

The consistently negative results across subgroups indicates that our overall findings are not the artifact of a few exceptionally poor investors in Congress but rather reflects a broader underperformance across members. Notably, none of the 88 alpha returns we estimate (22 subgroups, each estimated four ways) is positive and significant, and only a handful of point estimates are above zero.

D. MEMBER-LEVEL PERFORMANCE

In Figure 4 we display estimated excess returns for each member in our dataset: estimates of alpha from a separate Carhart four-factor regression for each member. (Names are

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[33]To test for the differences in intercepts we fit a pooled model with a group indicator (Democrat/Republican) and its interactions with all the controls. The main effect of the group indicator then identifies the differences in alpha returns (see Hoechle et al. (2009)).

[34]We define "power committees" in the House as Rules, Appropriations, Ways and Means, and Commerce; in the Senate they are Appropriations, Finance, and Commerce.

[35]We are grateful to Nick Carnes for providing us with the data on pre-congressional careers. A members is coded as belonging to a career category if she spent more than 60 % of her pre-congressional career in that category. The results are very similar if other cut-points are used. See Carnes (2010) for details on the career data.

[36]We can reject the null that former business owners earn the same returns as other members $p = .07$.

plotted only for members with relatively high or low returns or portfolio values.) A box and whiskers plot on the axis depicts the marginal distributions of members' alpha returns and portfolio values respectively (the line indicates the median, the edges of the box denote the interquartile range, and the whiskers indicate the 5th and 95th percentiles). The results confirm that poor performance is a very robust feature of this data and not driven by a few outlying members. The mean monthly excess return across members (-.24) is very close to the estimated excess return from Model 1 of Table 3 (-.23). Moreover, the marginal distribution of returns is fairly symmetric and clearly centered below zero (the median is at -.17).

E. Transaction-based portfolio analysis

Our analysis to this point has focused on the return on members' stock portfolios, reconstructed as nearly as possible from annual financial disclosure forms in Congress. As noted above, previous studies (Ziobrowski et al.; 2004, 2011) focus on transaction-based portfolio analysis, which measures the return on synthetic portfolios built only from transactions. We have focused on analysis of the actual portfolios because it gives a better measure of the financial benefit members derive from their stock investments. Still, transaction-based portfolio analysis provides useful information about investors' trading acumen (Seasholes and Zhu; 2010) that might be missed in analysis of actual portfolios, whose return depends both on well-timed trades and well-chosen holdings. For this reason, and also to provide comparability with previous research on congressional investing, we carry out transaction-based portfolio analysis using our data on stock transactions by members of Congress during the 2004-2008 period.

To make the most direct possible comparison with previous work, we begin by applying as closely as possible the method described in Ziobrowski et al. (2004). In particular, we ignore reported end-of-year holdings and construct three portfolios based on transactions only: a buy portfolio, which holds all stocks purchased by members of Congress for 255 trading days following the purchase date, a sell portfolio, which holds all stocks sold by members of Congress for 255 trading days following the sell date, and a hedged portfolio

that holds the purchased stocks and sells short the sold stocks (buy less sell portfolio). Like Ziobrowski et al. (2004) and Ziobrowski et al. (2011), we assign precise dollar values to trades using the midpoint of the value band specified on the disclosure report, with a top-code at $250,000. After constructing the transaction-based portfolio and calculating daily returns, we aggregate member returns up to the monthly level and construct a single value-weighted congressional portfolio by combining member returns in proportion to their portfolio weight. Following the earlier studies, we also use alternative weighting approaches in which members and/or trades are weighted equally for the return computations. We then estimate excess returns with the CAPM and Fama-French 3-Factor models.[37]

The full results for the estimated excess returns on the buy sample, the sell sample, and the hedged portfolio under the CAPM and Fama-French model for all members, Senate, and House are provided in Table 4. All hedged portfolio returns are also depicted in the bottom two panels of Figure 1 for easy comparison with the results of previous studies. The analysis provides no evidence of informed trading. None of the alpha estimates on the hedged portfolios is significant, and none is close to the magnitude Ziobrowski et al. (2004) reports for the Senate in the 1990s.

To check the sensitivity of the analysis to different holding periods and imputation methods, we also carry out the transaction-based portfolio analysis applying our own procedure to assign precise dollar values within bands (as described above) and using not just 255-day holding periods but also 1-day, 10-day, 25-day, and 140-day holding periods. The results are reported in Table A.4 in the appendix. With some combinations of holding period, model, and weights we find evidence of good or bad trading acumen, but the overall results are again very consistent with the null of zero excess returns.

V. Interpretation

What explains the poor investing performance that we find among members of Congress, despite their unusual access to market-relevant information and other advantages they enjoy as investors? One possibility is that political power actually hinders members of

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[37]The Fama-French model is the Carhart 4-Factor model without the momentum term.

Congress as investors more than it helps, because these investors must think not just about the financial return of a particular investment but also its political implications. Perhaps politicians invest in local companies in order to demonstrate their commitment to the district, for example, or in companies from which they seek campaign contributions in order to make their policy promises more credible. To the extent that members make these investments to achieve political (rather than financial) aims, the underperformance of their portfolios may be understandable. Consistent with this idea, in a companion paper we show that members of Congress disproportionately invest in both local companies and campaign contributors; *not* consistent with this idea, however, we find that these connected investments *outperform* the rest of the Congressional portfolio, and thus that members of Congress are not hampered but rather appear to be somewhat helped by mixing politics and investing (see Eggers and Hainmueller (2011) for details).

Another possible explanation is that members of Congress are held back by ethical and political constraints. Perhaps they possess the ability to enrich themselves through investing, but are wary of the consequences. This may be the case, and we see no way to decisively demonstrate otherwise. On the other hand, very few members of Congress put their money in blind trusts, which would seem to be the simplest way to steer clear of ethical and political fallout from being perceived to have unethically profited as investors.

We argue that the most likely explanation for the poor performance of members of Congress is that they are simply not that different from other investors. While our finding that congressional stock portfolios underperformed the market may be somewhat surprising based on the popular perception of politicians as savvy, well-connected, and possibly corrupt, it is entirely consistent with a long line of empirical work documenting that even supposed investment experts do not reliably outperform market indices. In the 1930s, Cowles (1933) found that stock market forecasts and recommendations made by financial service firms, fire insurance companies, and the editor of the *Wall Street Journal* tended to perform no better than what would result from random chance. In subsequent decades, similar findings have emerged for mutual fund managers and other financial professionals

(Gruber; 1996; Carhart; 1997; Andersson; 2004; Fung et al.; 2008): some groups of money managers appear to outperform the market sufficiently to earn their fees (Stulz; 2007), but on the whole there is little evidence of substantial and persistent excess returns. A particularly robust finding in empirical finance is that individuals tend to perform below market indices; underperformance among individual investors has been found not just in the United States (see, for example, Odean (1999); Barber and Odean (2000, 2008); Goetzmann and Kumar (2008)) but also in Japan (Kim and Nofsinger; 2007), Finland (Grinblatt and Keloharju; 2000), Switzerland (Hoechle et al.; 2009), Norway (Døskeland and Hvide; 2011), Germany (Baltzer et al.; 2011), Taiwan (Barber et al.; 2009), and the Netherlands (Bauer et al.; 2009).[38] Despite their various advantages over other individual investors – including wealth, education, rich personal networks, and in many cases the advice of professional money managers – members of Congress appear to perform no better.

VI. Conclusion

Our study, the first to measure the performance of congressional stock portfolios, indicates that members of Congress enjoy no special advantage as investors. Neither Congress as a whole nor any discernible subgroup was able to generate positive excess returns in the 2004–2008 period. Not only did their portfolios perform poorly, but their trades show no sign of systematic information advantages. Members of Congress would on the whole have been financially better off investing in passive index funds.

In one sense, these findings should be unsurprising: financial theory suggests that it is difficult to systematically outperform the market, and previous research on the investment performance of individual investors and financial professionals confirms this principle in practice. Poor performance in Congress confirms the advice commonly given to individual equity investors, which is to diversify through index funds and not try to outsmart the market.

The findings are surprising, however, for two reasons. One is that members of Congress

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[38]This underperformance has been linked to overconfidence and a variety of related errors in judgment; see Barberis and Thaler (2003) and Kim and Nofsinger (2007) for reviews.

do occasionally have access to material nonpublic information, and a wealth of political economy research has shown that political events can strongly affect financial markets. The fact that, despite these privileges, members of Congress do not perform very well as investors suggests that members of Congress either pass up valuable opportunities (perhaps due to other priorities, or concerns about political repercussions and ethics regulations) or the arbitrage opportunities have disappeared before they have time to act on them.

The other reason why the findings are surprising is that, due to both previous academic research and journalistic accounts that build on it, the public appears to be convinced that members of Congress do in fact trade stocks on privileged political information and become rich doing so. One of the contributions of this paper has been to point out the limitations of the existing academic work that contributes to this perception. Most importantly, a careful reading of the published results indicates that they in fact provide no evidence of trading acumen in the House, and their evidence of good timing in the Senate is very sensitive to how members and trades are weighted. Previous research has also never evaluated the return on members' actual portfolios, instead focusing on synthetic portfolios built only from trades. With this understanding of the existing evidence base, it becomes less surprising that we fail to find positive excess returns in either congressional portfolios or trades in a more recent period. Our results are consistent with earlier studies in that neither those studies nor our study shows convincing evidence that Congress either trades on an informational advantage or enjoys above-market portfolio returns.

From a public policy perspective, it is important to rectify the conventional wisdom about congressional insider trading. The perception that Congress enriches itself through unethical trading behavior erodes public respect for Congress as a political institution and informs proposals for radical institutional reform. Reports of insider trading in Congress have prompted calls from a Republican presidential hopeful to turn Congress into a part-time legislature,[39] and congressional stock trading has been mentioned as a top grievance

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[39]Patrick O'Connor and Brody Mullins, "Perry Faults Stock Deals in Congress," *Wall Street Journal*, November 16, 2011.

of the Occupy Wall Street protesters.[40] These responses may be appropriate if insider Congress were in fact guilty of the charges leveled against it. While our findings certainly do not rule out unethical behavior, they do cast serious doubt on the basic premise that there is widespread and lucrative political insider trading occurring in Congress. Those seeking to reform Congress should take note of these findings and revise their priorities accordingly.

In light of recent theoretical work in political economy, our findings also have interesting implications for the quality of political leadership. A number of scholars have recently emphasized the extent to which good government depends on bringing honest and competent people into office (Besley; 2005). In most political selection models (e.g. Caselli and Morelli; 2004; Besley; 2006; Gagliarducci et al.; 2010), raising politicians' salaries not only improves the behavior of politicians in office but also improves the quality of the pool of citizens who run for office, because higher-quality citizens are assumed to have better private sector options.[41] The problem with congressional insider trading from the perspective of political selection models (e.g. Besley; 2005) is that, because this behavior is widely viewed as unethical and in conflict with a politician's public responsibilities, the rewards would accrue disproportionately to politicians who are less honest or public-spirited; this would tend to decrease the quality of politicians who serve in office. Our research suggests that this is the wrong way to interpret the phenomenon of insider trading in Congress. The more troubling problem is not the fact that political insider trading rewards dishonest politicians, but rather that unjustified suspicion of widespread political insider trading reduces the legitimate reputational rewards of serving in Congress, thus discouraging honest and competent citizens from standing for office in the future.

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[40]Naomi Wolf, "The shocking truth about the crackdown on Occupy," *The Guardian*, Nov. 25, 2011.
[41]An exception is Mattozzi and Merlo (2008).

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Table 1: Summary of (Ziobrowski et al.; 2004) and (Ziobrowski et al.; 2011): Annualized excess returns (%) on synthetic (transaction-based) portfolios of members of the Senate (1993-1998) and House (1985-2001), 12-month holding period

		Buys		Sells		Hedged Portfolio	
Sample	Model	Equal-Weighted	Trade-Weighted	Equal-Weighted	Trade-Weighted	Equal-Weighted	Trade-Weighted
Senate (1993-1998)							
Aggregated	CAPM	1.4	6.1	-3.8	-4.0	5.2*	10.1*
Aggregated	Fama French	3.9*	10.2*	-0.1	-2.4	4.0	12.5*
Average Member	CAPM	2.8	5.3†	-1.6	-0.5	4.4	5.8†
Average Member	Fama French	5.9†	6.8*	1.4	2.2	3.3	4.6
House (1985-2001)							
Aggregated	CAPM	-0.3	5.2*	-2.4†	3.7	2.1	1.5
Aggregated	Fama French	1.2	5.4*	-0.8	5.2*	2.0	0.2
Average Member	CAPM	-0.2	4.8*	NR	NR	NR	NR
Average Member	Fama French	1.4	5.4*	NR	NR	NR	NR

Note: Table shows annualized alpha returns (in %) for transaction-based portfolios as reported in table 2 and table 3 in (Ziobrowski et al.; 2004) and (Ziobrowski et al.; 2011) respectively. NR=Estimates that are not reported in (Ziobrowski et al.; 2011). Grey shaded estimates are not reported in (Ziobrowski et al.; 2011), but computed using the reported buy minus sell estimates (see text for details).
$\dagger$, $\star$, and $\star\star$ indicate significance at 10%, 5% and 1% level (two-sided tests).

Table 2: The common stock holdings and transactions of members of Congress - annual averages 2004-2008

	Holdings		Annual Transactions			
			Buys		Sells	
	$ Value	Number	$ Value	Number	$ Value	Number
Min	501	1	0	0	0	0
25th Percentile	26,424	2	0	0	11,010	1
Median	93,827	5	17,656	2	39,636	3
75th Percentile	451,169	21	105,960	9	186,068	11
Max	140,767,979	331	32,253,189	424	47,615,848	479
Mean	1,718,091	19	401,744	18	618,942	22

Note: Summary statistics are annual (aggregated) averages across the 2004-2008 period based on end-of-year financial disclosure reports for 422 members of Congress that report holding common stocks between 2004 to 2008. Values are reported in bands and imputed based on a log-normal model that was fitted to each value band for the group of members that report exact amounts within each band (see text for details).

Table 3: Monthly excess returns (%) on stock portfolios of members of Congress 2004-2008

Dependent Variable	Risk-Adjusted Monthly Portfolio Return ($R_{i,t} - R_{f,t}$)												
Mean							-.39						
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
					Party		Chamber		Power Committee			Period	
		All Members			Dems	Reps	House	Senate	House	Senate	None	2004-06	2007-08
$R_{m,t} - R_{f,t}$	0.90	0.90	0.96	0.90	0.89	0.91	0.89	0.94	0.85	0.92	0.93	0.97	0.87
	(0.03)	(0.03)	(0.02)	(0.03)	(0.04)	(0.04)	(0.04)	(0.03)	(0.05)	(0.04)	(0.03)	(0.06)	(0.03)
SMB_t	0.10	0.11	0.04	-0.01	0.15	0.07	0.10	0.14	0.19	0.04	0.06	0.03	-0.14
	(0.05)	(0.05)	(0.03)	(0.05)	(0.07)	(0.05)	(0.06)	(0.06)	(0.07)	(0.08)	(0.04)	(0.06)	(0.08)
HML_t	0.21	0.21	0.08	0.08	0.15	0.26	0.23	0.13	0.24	0.12	0.21	0.07	0.29
	(0.05)	(0.05)	(0.02)	(0.05)	(0.06)	(0.06)	(0.05)	(0.07)	(0.07)	(0.08)	(0.05)	(0.06)	(0.08)
MOM_t	-0.18	-0.18	-0.06	-0.08	-0.18	-0.19	-0.20	-0.11	-0.26	-0.08	-0.15	-0.05	-0.25
	(0.04)	(0.04)	(0.01)	(0.02)	(0.05)	(0.04)	(0.05)	(0.03)	(0.06)	(0.03)	(0.04)	(0.04)	(0.04)
Alpha	-0.23*	-0.23†	-0.20**	-0.15†	-0.30*	-0.17†	-0.26**	-0.12	-0.26*	-0.10	-0.24**	-0.12	-0.28*
	(0.09)	(0.12)	(0.04)	(0.08)	(0.12)	(0.10)	(0.10)	(0.11)	(0.13)	(0.13)	(0.09)	(0.11)	(0.14)
Obs	18,388	18,388	18,388	18,388	8,621	9,754	14,475	3,808	6,847	2,637	8,904	11,818	6,570
Annualized Alpha	-2.76*	-2.76†	-2.4**	-1.8†	-3.6*	-2.04†	-3.12**	-1.44	-3.12*	-1.2	-2.88**	-1.44	-3.36*

Model	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
		Seniority			Portfolio Size			Net Worth			Pre-Congressional Career		
	Low	Medium	High	Low	Medium	High	Low	Medium	High	Business	Lawyer	Politician	Other
$R_{m,t} - R_{f,t}$	0.89	0.87	0.94	0.89	0.89	0.92	0.87	0.94	0.88	0.93	0.89	0.96	0.88
	(0.06)	(0.04)	(0.02)	(0.07)	(0.04)	(0.02)	(0.06)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
SMB_t	0.08	0.16	0.05	0.13	0.17	0.02	0.17	0.07	0.09	0.09	0.28	0.04	0.08
	(0.07)	(0.05)	(0.05)	(0.07)	(0.07)	(0.03)	(0.08)	(0.05)	(0.05)	(0.08)	(0.08)	(0.09)	(0.05)
HML_t	0.09	0.23	0.28	0.28	0.20	0.16	0.20	0.19	0.23	0.19	0.36	0.17	0.18
	(0.07)	(0.06)	(0.05)	(0.08)	(0.07)	(0.04)	(0.08)	(0.05)	(0.05)	(0.08)	(0.09)	(0.09)	(0.05)
MOM_t	-0.16	-0.14	-0.24	-0.21	-0.23	-0.11	-0.28	-0.10	-0.18	-0.23	-0.11	-0.23	-0.18
	(0.05)	(0.04)	(0.03)	(0.06)	(0.05)	(0.02)	(0.06)	(0.04)	(0.02)	(0.05)	(0.05)	(0.06)	(0.04)
Alpha	-0.27*	-0.22*	-0.19*	-0.15	-0.29*	-0.24**	-0.32*	-0.13	-0.26**	0.04	-0.34*	-0.21	-0.23*
	(0.12)	(0.11)	(0.09)	(0.15)	(0.12)	(0.05)	(0.15)	(0.10)	(0.08)	(0.16)	(0.15)	(0.17)	(0.09)
Obs	5,602	7,171	5,615	5,422	6,388	6,578	5,422	6,483	6,470	1,131	2,650	3,407	11,200
Annualized Alpha	-3.24*	-2.64*	-2.28*	-1.8	-3.48*	-2.88**	-3.84*	-1.56	-3.12**	0.48	-4.08*	-2.52	-2.76*

Note: Table shows results from analysis using the monthly returns (in %) of the holdings-based calendar-time portfolios of all members of Congress that report holding common stocks during the 2004-2008 period. The dependent variable is monthly risk adjusted return of a member's holdings $R_{i,t} - R_{f,t}$ (where $R_{f,t}$ is the risk-free return from Ken French's website). Portfolios are based on information reported in end-of-year financial disclosure reports (see text for details). Controls are the Fama and French (1993) mimicking portfolios (the market excess return ($R_{m,t} - R_{f,t}$), a zero-investment size portfolio (SMB_t), a zero-investment book-to-market portfolio (HML_t)) and the Carhart (1997) momentum factor (MOM_t). Rogers standard errors (clustered by month) are provided in parenthesis. Models 1-4 present the regression for the sample of all members, where model 1 is the raw regression, model 2 includes a random effect for member, model 3 is weighted by a member's number of monthly holdings, and model 4 is weighted by a member's average value of monthly holdings. Models 5-26 report regression results for selected subgroups of members. Power committees in the House are defined as Rules, Appropriations, Ways and Means, and Commerce; in the Senate as Appropriations, Finance, and Commerce. Stratifications for seniority, portfolio size, and net worth are based on equally sized bins. Pre-congressional careers are classified based on Carnes (2010) into Business Owners, Lawyers, State or Local Politicians, and Other careers. A member is classified as belonging to an occupational category if he spent more then 60 % of his pre-congressional career in that category.
† , ⋆ , and ⋆⋆ indicate significance at 10%, 5% and 1% level (two-sided tests) for excess returns.

Table 4:   Annualized excess returns (%) on synthetic (transaction-based) portfolios of members of the Senate and House (2004-2008), 12-month holding period

Sample	Model	Buys		Sells		Hedged Portfolio	
		Equal-Weighted	Trade-Weighted	Equal-Weighted	Trade-Weighted	Equal-Weighted	Trade-Weighted
Congress (2004-2008)							
Aggregated	CAPM	-0.16	-1.52	-0.42	-2.24**	0.28	0.72
		(0.72)	(1.08)	(0.84)	(0.60)	(0.96)	(1.32)
Aggregated	Fama French	0.05	-1.37	-0.60	-2.53**	0.65	1.16
		(0.48)	(0.96)	(0.84)	(0.60)	(0.84)	(0.96)
Average Member	CAPM	0.36	0.13	-0.79	-1.31	1.15	1.44
		(2.16)	(2.16)	(1.56)	(1.44)	(1.44)	(1.68)
Average Member	Fama French	0.02	-0.16	-1.62	-2.05	1.66	1.90
		(2.16)	(2.28)	(1.56)	(1.44)	(1.20)	(1.44)
Senate (2004-2008)							
Aggregated	CAPM	-2.38**	-2.81*	-1.19	-3.01**	-1.19	0.19
		(0.84)	(1.32)	(1.08)	(1.08)	(1.44)	(1.68)
Aggregated	Fama French	-2.23*	-2.98*	-1.51	-3.41**	-0.72	0.43
		(0.96)	(1.44)	(0.96)	(0.84)	(1.44)	(1.68)
Average Member	CAPM	-2.92†	-3.29†	0.79	-0.29	-3.71	-3.00
		(1.56)	(1.80)	(3.00)	(2.64)	(2.76)	(2.52)
Average Member	Fama French	-3.00†	-3.29†	-0.29	-1.19	-2.71	-2.10
		(1.68)	(1.8)	(2.64)	(2.4)	(2.4)	(2.04)
House (2004-2008)							
Aggregated	CAPM	0.26	-1.00	-0.16	-1.25	0.41	0.25
		(0.84)	(1.44)	(0.96)	(1.2)	(1.08)	(1.68)
Aggregated	Fama French	0.44	-0.60	-0.25	-1.42	0.71	0.82
		(0.60)	(0.96)	(0.84)	(1.2)	(1.08)	(1.20)
Average Member	CAPM	1.45	1.37	-1.72	-1.78	3.17	3.14
		(2.76)	(2.76)	(1.32)	(1.32)	(2.28)	(2.40)
Average Member	Fama French	0.97	0.95	-2.45†	-2.46†	3.42	3.41
		(2.88)	(3.00)	(1.32)	(1.32)	(2.16)	(2.28)

Note: Table shows results from analysis using the monthly returns (in %) of the transaction-based calendar-time portfolios formed by mimicking the trades of members of Congress that report holding common stocks during the 2004-2008 period. Following (Ziobrowski et al.; 2004) and (Ziobrowski et al.; 2011) stocks are held held in a calendar-time portfolio for a fixed holding period of 255 days and dollar values are imputed using band midpoints or a maximum value of $250,000 in the highest band. Calendar-time portfolio are formed based on stocks bought ("Buys"), and another portfolio based on stocks sold ("Sells"), and a third zero-cost portfolio that holds the portfolio of bought stocks and sells short the portfolio of sold stocks ("Long/Short"). For the trade-weighted portfolios the trades are weighted by dollar value, for the equal-weighted portfolios the trades are weighted equally. The aggregate portfolio mimics the aggregate investments of all members (value-weighted), the average members portfolio mimics the investments of the average member (equal member weighted). CAPM alpha is the result from a time-series regression of the portfolio excess return (i.e. raw return minus risk-free rate) on the market excess return. Fama-French alpha is the result from a time-series regression of the portfolio excess return on the three Fama and French (1993) mimicking portfolios.
†, ⋆, and ⋆⋆ indicate significance at 10%, 5% and 1% level (two-sided tests) for excess returns.

Figure 1: Performance of synthetic (transaction-based) hedged portfolios in Congress: Ziobrowski et al. (2004), Ziobrowski et al. (2011), and current study
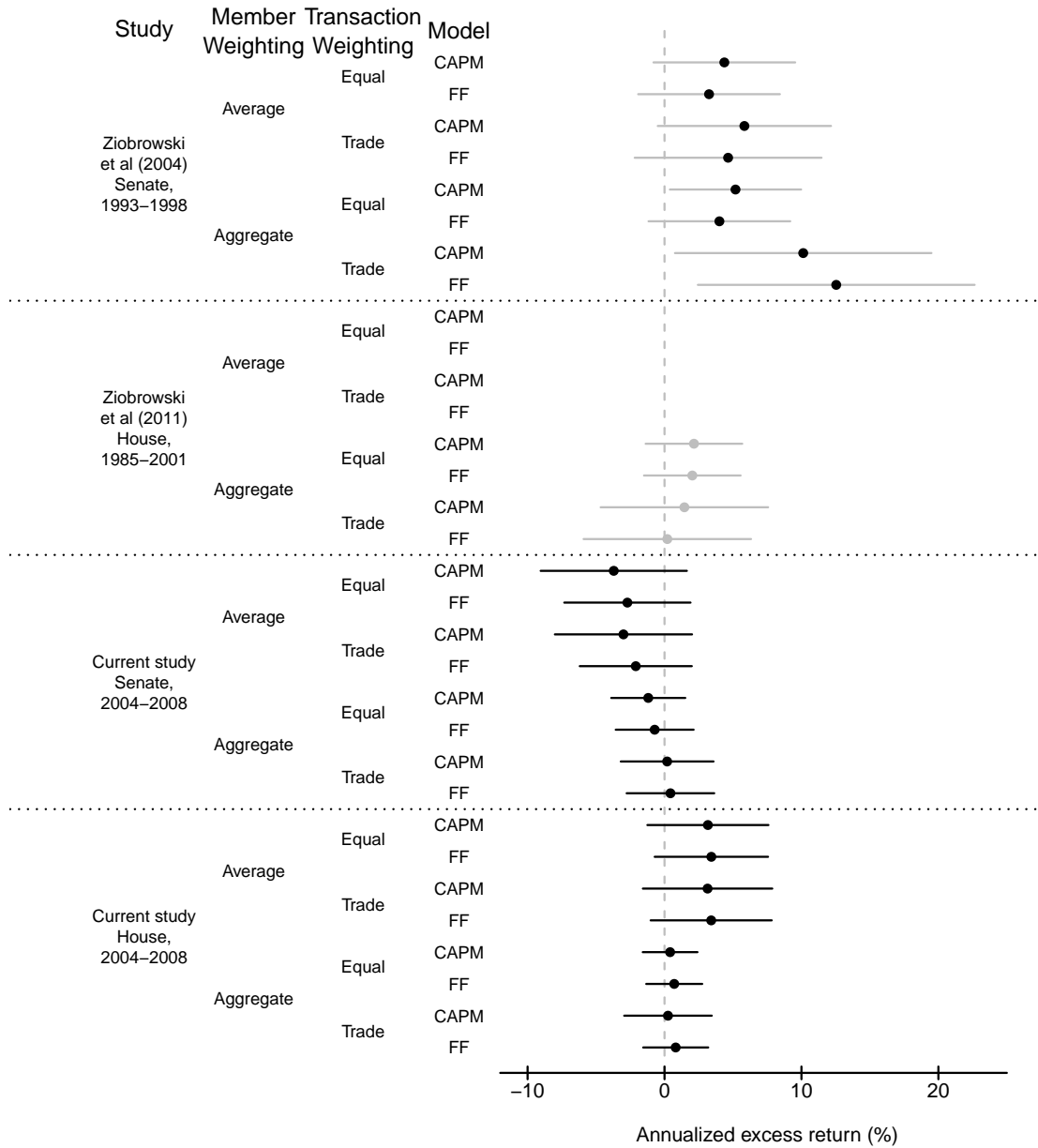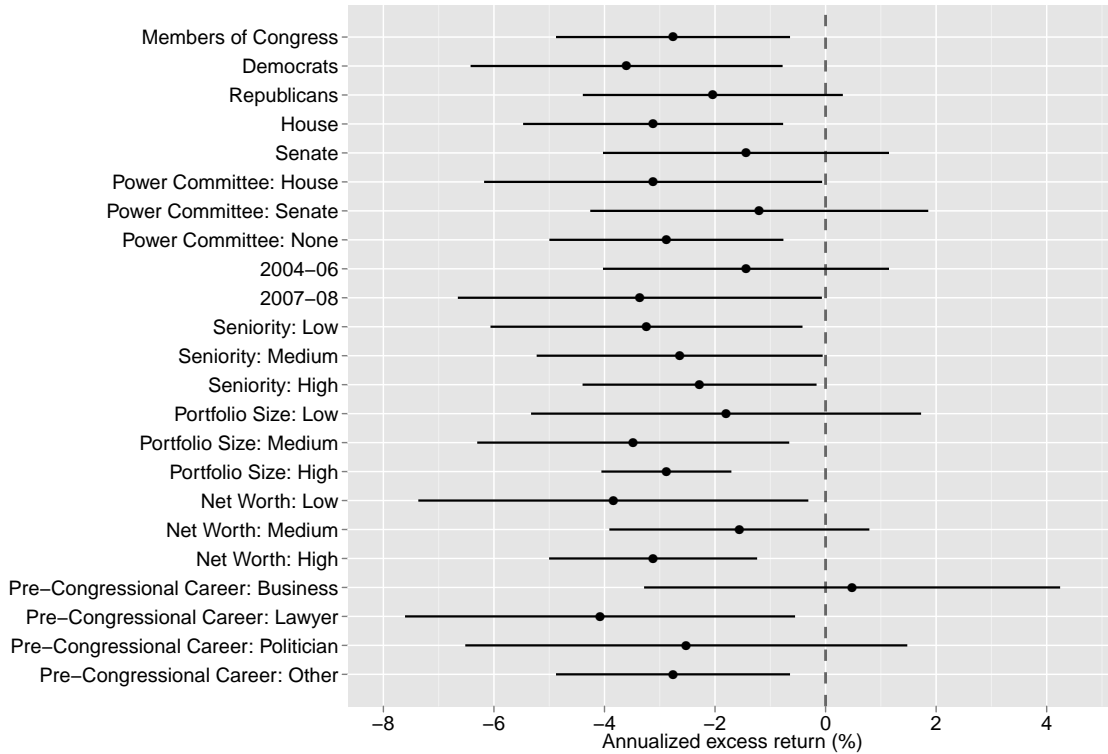
Note: Figure depicts point estimates for annualized alpha returns in % (with .95 confidence intervals) on transaction-based portfolios in Congress (12-month holding period) in different time periods using various weighting schemes and models. "Aggregate" weighting of members weighs members by their portfolio size, whereas "Average" weighting of members weighs members equally. "Trade" weighting of transactions weighs trades by their dollar amount whereas "Equal" weighting weighs them equally. The top two panels depict reported results from Ziobrowski et al. (2004) and Ziobrowski et al. (2011) (also summarized in Table 1), with point estimates and standard errors imputed as needed. In particular, because the Ziobrowski studies do not report standard errors, we impute standard errors to create confidence intervals as follows: for results that are reported to be statistically significant, we impute a standard error that corresponds to a p-value in the center of the implied band (e.g. a p-value of .075 if the p-value is reported to be between .05 and .1); for results not reported to be statistically significant, we use the imputed standard error of the most similar statistically significant model. Unlike in Ziobrowski et al. (2004), where the hedged results provide the headline finding, Ziobrowski et al. (2011) also does not report hedged estimates; we impute the point estimates when possible by subtracting the excess return on the buy portfolio from the excess return on the sell portfolio, and impute the standard errors by slightly inflating the imputed standard errors on the buy portfolios (which would yield approximately the correct standard errors based on our own transaction-based portfolio analyses). It is not possible to impute hedged returns for the equal-member weighted analysis because Ziobrowski et al. (2011) does not report the return on the sell portfolio for that weighting. The bottom two panels depict the point estimates and standard errors from our own transaction-based portfolio analysis, reported in Table 4.

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Figure 2: Cumulative raw average return of congressional stock portfolios, 2004-2008 compared to market benchmark
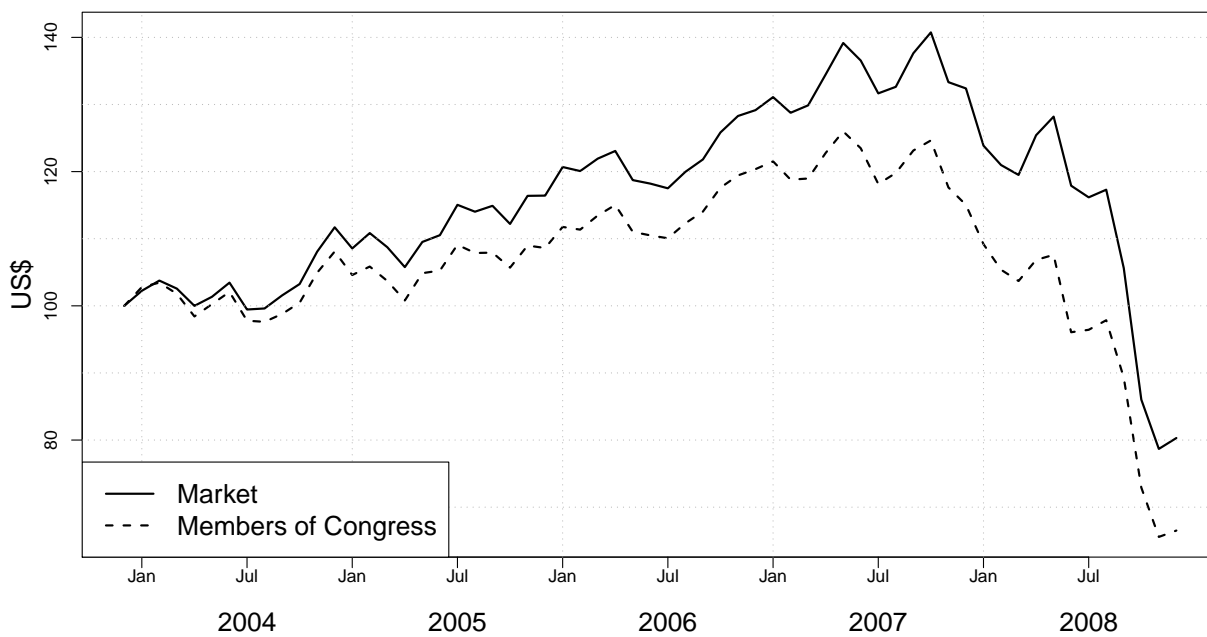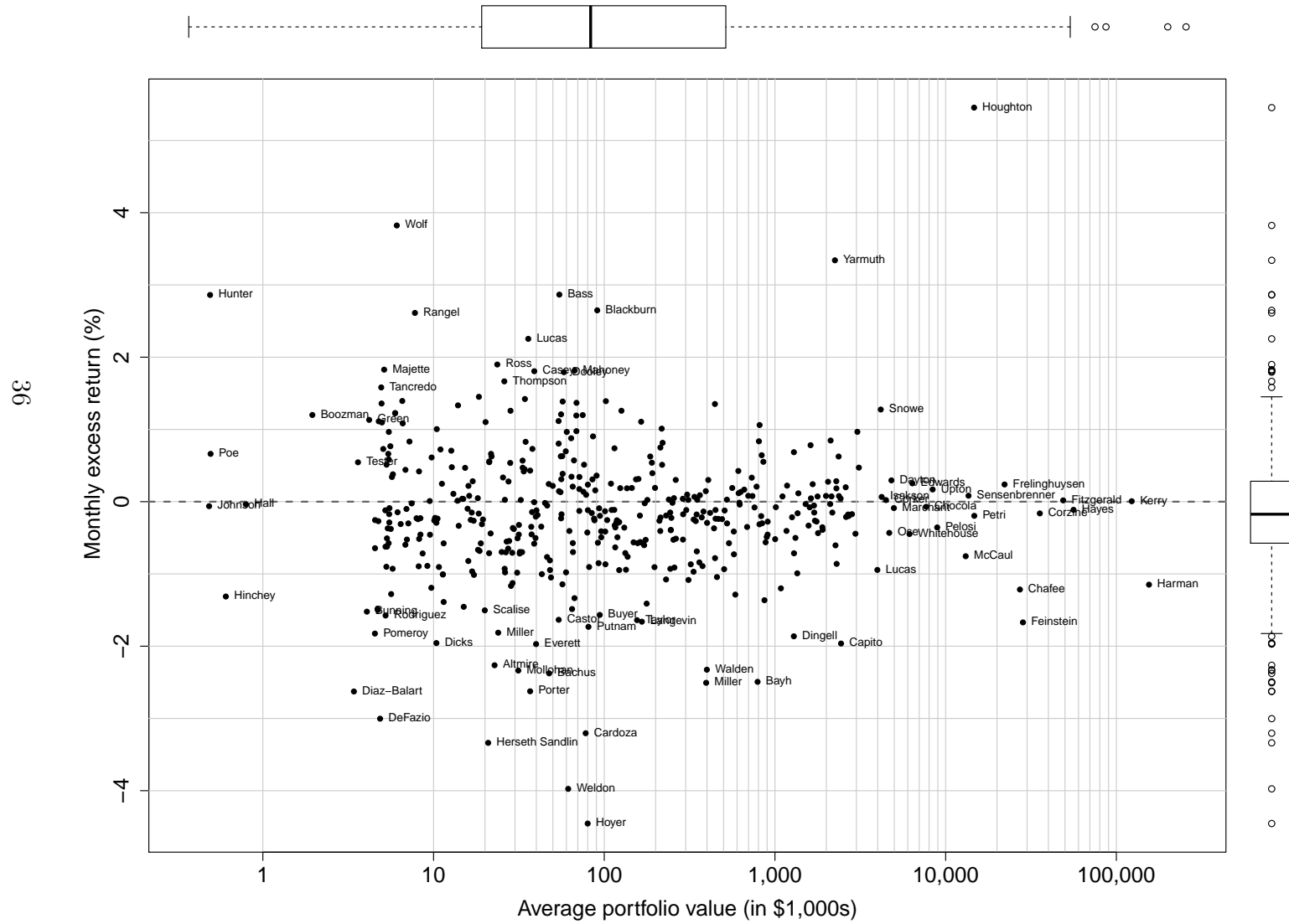

Note: Cumulative monthly return is shown for a $100 dollar position in the CRSP market index (a value-weighted index of stocks listed on the NYSE, AMEX, and NASDAQ) and the average congressional portfolio beginning in January 2004. The average congressional portfolio return is built by averaging monthly raw returns across members for each month (see text for details).

Figure 3: Annualized excess returns (%) of stock portfolios in Congress, 2004-2008

Figure 4: Members' Monthly Excess Returns (%) and Average Portfolio Size 2004-2008

Excess Returns From CAPM

Table A.1 contains our replication of table 3 using the CAPM model.

Table A.1: Monthly excess Returns (%) for Stock Investments of Members of Congress 2004-2008 estimated with CAPM

Dependent Variable													
Mean						-.39							
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
					Party		Chamber		Power Committee			Period	
		All Members			Dems	Reps	House	Senate	House	Senate	None	2004-06	2007-08
$R_{m,t} - R_{f,t}$	0.96	0.96	0.98	0.90	0.96	0.96	0.95	1.00	0.94	0.95	0.98	0.96	0.92
	(0.05)	(0.05)	(0.02)	(0.04)	(0.04)	(0.06)	(0.05)	(0.05)	(0.07)	(0.05)	(0.04)	(0.03)	(0.06)
Alpha	-0.27*	-0.27†	-0.21**	-0.18*	-0.36*	-0.18	-0.30*	-0.14	-0.33*	-0.11	-0.26*	-0.06	-0.70**
	(0.12)	(0.16)	(0.05)	(0.08)	(0.14)	(0.13)	(0.13)	(0.12)	(0.17)	(0.13)	(0.12)	(0.08)	(0.26)
Obs	18388	18388	18388	18388	8621	9754	14475	3808	6847	2637	8904	11818	6570
Annualized Alpha	-3.24*	-3.24†	-2.52**	-2.16*	-4.32*	-2.16	-3.6*	-1.68	-3.96*	-1.32	-3.12*	-0.72	-8.4**

Model	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
		Seniority			Portfolio Size			Net Worth			Pre-Congressional Career		
	Low	Medium	High	Low	Medium	High	Low	Medium	High	Business	Lawyer	Politician	Other
$R_{m,t} - R_{f,t}$	0.94	0.93	1.00	0.96	0.97	0.95	0.96	0.98	0.94	0.99	0.99	1.01	0.93
	(0.05)	(0.06)	(0.06)	(0.07)	(0.06)	(0.03)	(0.08)	(0.04)	(0.05)	(0.04)	(0.07)	(0.06)	(0.05)
Alpha	-0.33*	-0.21	-0.26	-0.18	-0.35*	-0.25**	-0.42*	-0.12	-0.29*	-0.03	-0.26	-0.30†	-0.28*
	(0.13)	(0.13)	(0.16)	(0.18)	(0.15)	(0.08)	(0.19)	(0.11)	(0.12)	(0.19)	(0.19)	(0.17)	(0.12)
Obs	5602	7171	5615	5422	6388	6578	5422	6483	6470	1131	2650	3407	11200
Annualized Alpha	-3.96*	-2.52	-3.12	-2.16	-4.2*	-3.00**	-5.04*	-1.44	-3.48*	-0.36	-3.12	-3.6†	-3.36*

Note: Table shows results from analysis using the monthly returns (in %) of the holdings-based calendar-time portfolios of all members of Congress that report holding common stocks during the 2004-2008 period. The dependent variable is monthly risk adjusted return of a Member's holdings $R_{i,t} - R_{f,t}$ (where $R_{f,t}$ is the risk-free return from Ken French's website). Portfolios are based on information reported in end-of-year financial disclosure reports (see text for details). Controls are the market excess return ($R_{m,t} - R_{f,t}$). Rogers standard errors (clustered by month) are provided in parenthesis. Models 1-4 present the regression for the sample of all members, where model 1 is the raw regression, model 2 includes a random effect for member, model 3 is weighted by a member's number of monthly holdings, and model 4 is weighted by a member's average value of monthly holdings. Models 5-26 report regression results for selected subgroups of members. Power committees in the House are defined as Rules, Appropriations, Ways and Means, and Commerce; in the Senate as Appropriations, Finance, and Commerce. Stratifications for seniority, portfolio size, and net worth are based on equally sized bins. Pre-congressional careers are classified based on Carnes (2010) into Business Owners, Lawyers, State or Local Politicians, and Other careers. A member is classified as belonging to an occupational category if he spent more then 60 % of his pre-congressional career in that category.
$\dagger$, $\star$, and $\star\star$ indicate significance at 10%, 5% and 1% level (two-sided tests) for excess returns.

Tables A.2 and A.3 replicate the analysis of Table 3 using aggregated data, as explained in the text. Briefly, in place of our panel regressions, which estimate the average alpha across members-months, we carry out regressions that model the average monthly return on a single portfolio that is created by aggregating member returns. For the Aggregate Congressional Portfolio the average monthly return is computed using a value-weighted average across members; for the Average Congressional Portfolio member returns are equal-weighted across members.

Table A2 provides the results of our estimates of the abnormal return on the Congressional portfolio. Panel A shows that the average monthly excess returns for the aggregate Congressional portfolio is negative and significant at conventional levels in both the CAPM and Carhart 4-Factor specifications. The same is true for the the average Congressional portfolio shown in Panel B. The excess return estimates are very similar. For the CAPM, the magnitudes suggest that the aggregate Congressional portfolio underperforms the market by an average of about .27 percentage points per month, which annualizes to a yearly excess return of about -3.2% with a .95 confidence interval of $-5.5; -.95$; the average Congressional portfolio underperforms the market by an average of about .31 percentage points, which annualizes to a yearly excess return of about -3.8% $[-6.0; -1.5]$. The corresponding annualized figures for the 4-Factor model are -2.8% $[-5.2; -.5]$ and -3.1 % $[-5.1; -1.2]$.

Table A.2: Monthly excess returns (%) for Aggregate/Average Congressional Portfolio

	Excess Return	Coefficient Estimate on:				Adjusted R^2
		$(R_{m,t} - R_{f,t})$	SMB_t	HML_t	MOM_t	

Panel A: Monthly Alpha Returns for Aggregate Congressional Portfolio

	Excess Return	$(R_{m,t} - R_{f,t})$	SMB_t	HML_t	MOM_t	Adjusted R^2
CAPM	-0.269**	0.925				0.96
	(0.095)	(0.038)				
Carhart 4-Factor	-0.239*	0.920	-0.040	0.076	-0.065	0.96
	(0.099)	(0.037)	(0.053)	(0.055)	(0.037)	

Panel B: Monthly Alpha Returns for the Average Member

	Excess Return	$(R_{m,t} - R_{f,t})$	SMB_t	HML_t	MOM_t	Adjusted R^2
CAPM	-0.319**	0.979				0.96
	(0.093)	(0.032)				
Carhart 4-Factor	-0.263**	0.933	0.081	0.090	-0.125	0.98
	(0.080)	(0.025)	(0.042)	(0.042)	(0.030)	

Note: Table shows results from analysis using the monthly aggregate or average returns (in %) of the holdings-based calendar-time portfolios of all members of Congress that report holding common stocks during the 2004-2008 period. The dependent variable is monthly risk-adjusted return obtained from aggregating the monthly portfolio returns across members. N=60. Panel A presents results for the gross monthly return on a portfolio that mimics the aggregate investments of all members of Congress (value-weighted). Panel B presents results for the gross return on a portfolio that mimics the investment of the average member of Congress (equal member weighted). CAPM is the result from a time-series regression of the member excess return on the market excess return ($R_{m,t} - R_{f,t}$). Carhart 4-factor is the result from a time-series regression of the member excess return on the Fama and French (1993) mimicking portfolios (the market excess return, a zero-investment size portfolio (SMB_t), a zero-investment book-to-market portfolio (HML_t)) and the Carhart (1997) momentum factor (MOM_t). Robust standard errors are presented in parentheses.
†, ⋆, and ⋆⋆ indicate significance at 10%, 5% and 1% level (two-sided tests) for excess returns.

Table A.3 reports the estimated excess returns across member subgroups using the aggregated data approach. The results are very similar to the results from the panel regression. The only noticeable exception is that the aggregate portfolio of prior business owners actually beats the market and the estimates are significant at conventional levels. Other than that all subgroups consistently underperform.

Table A.3: Monthly Excess Return (%) for Selected Subgroups

	Aggregate Portfolio Alpha Return		Average Member Portfolio Alpha Return	
	CAPM	4-Factor	CAPM	4-Factor
Democrats	-0.344**	-0.304*	-0.300*	-0.225†
	(0.122)	(0.126)	(0.143)	(0.118)
Republicans	-0.152	-0.163	-0.174	-0.107
	(0.143)	(0.139)	(0.156)	(0.105)
House	-0.212†	-0.170	-0.272†	-0.194†
	(0.128)	(0.134)	(0.155)	(0.114)
Senate	-0.334**	-0.336**	-0.103	-0.081
	(0.122)	(0.129)	(0.128)	(0.121)
Power Committee House	-0.173	-0.088	-0.300	-0.184
	(0.146)	(0.144)	(0.223)	(0.149)
Power Committee Senate	-0.293*	-0.248†	-0.089	-0.069
	(0.139)	(0.134)	(0.095)	(0.105)
No Power Committee	-0.274*	-0.309*	-0.244*	-0.196*
	(0.117)	(0.142)	(0.110)	(0.080)
2004-2006	-0.172†	-0.255*	-0.188**	-0.190*
	(0.098)	(0.110)	(0.067)	(0.096)
2007-2008	-0.296†	-0.216	-0.563**	-0.329*
	(0.178)	(0.222)	(0.196)	(0.161)
Seniority Low	-0.088	0.001	-0.313*	-0.219†
	(0.129)	(0.127)	(0.143)	(0.132)
Seniority Medium	-0.569**	-0.625**	-0.187	-0.159
	(0.150)	(0.167)	(0.150)	(0.115)
Seniority High	-0.273	-0.322*	-0.211	-0.121
	(0.168)	(0.156)	(0.161)	(0.102)
Portfolio Size Low	-0.606**	-0.518*	-0.127	-0.058
	(0.230)	(0.229)	(0.202)	(0.162)
Portfolio Size Medium	-0.395**	-0.405**	-0.307†	-0.219†
	(0.114)	(0.121)	(0.171)	(0.132)
Portfolio Size High	-0.259**	-0.243*	-0.257**	-0.211**
	(0.095)	(0.097)	(0.090)	(0.055)
Net Worth Low	-0.643**	-0.533**	-0.312	-0.210
	(0.185)	(0.168)	(0.222)	(0.166)
Net Worth Medium	-0.270**	-0.325**	-0.100	-0.077
	(0.087)	(0.088)	(0.118)	(0.108)
Net Worth High	-0.272**	-0.261*	-0.277*	-0.220**
	(0.102)	(0.103)	(0.131)	(0.082)
Former Business Owners	0.467	0.532	-0.026	0.071
	(0.332)	(0.362)	(0.198)	(0.167)
Former Lawyers	-0.245	-0.405†	-0.213	-0.286†
	(0.231)	(0.239)	(0.186)	(0.150)
Former Local Politicians	-0.516**	-0.451*	-0.279	-0.142
	(0.173)	(0.203)	(0.176)	(0.167)
Other Pre-Congressional Careers	-0.223*	-0.192†	-0.246†	-0.168
	(0.109)	(0.103)	(0.143)	(0.106)

Note: Alpha returns (in %) for selected subgroups with robust standard errors in parentheses. Aggregate returns/Average member returns are for portfolios that mimics the aggregate investments of all members/investments of the average member in a specific group respectively. Alpha returns from the CAPM are estimated with a time-series regression of the members' monthly excess return on the monthly market excess return. The Carhart 4-factor adds the Fama and French (1993) mimicking portfolios and the Carhart (1997) momentum factor as controls.
†, *, and ** indicate significance at 10%, 5% and 1% level (two-sided tests) for excess returns.

EXCESS RETURNS FROM TRANSACTION-BASED PORTFOLIO

Table 4 and A.4 show monthly excess returns for all members over the 2004-2008 period estimated from the transaction-based calendar-time portfolios formed by mimicking the trades of all members of Congress that report holding common stocks during the 2004-2008 period. Calendar-time portfolios are formed based on stocks bought ("Buys"), and another portfolio based on stocks sold ("Sells"), and a third zero-cost portfolio that holds the portfolio of bought stocks and sells short the portfolio of sold stocks ("Long/Short"). Table 4 replicates the transaction-based portfolio returns for the value-weighted aggregate Congressional portfolios using the approach by Ziobrowski et al. (2004) where stocks are held in a calendar-time portfolio for a fixed holding period of 255 days and dollar values are imputed using band midpoints or a maximum value of $250,000 in the highest band. Table A.4 contains the results for our analysis of the transaction-based portfolio returns for the average member and aggregated congressional portfolio for various fixed holding periods. Regardless of the approach used, we find that the trades of members of Congress are not particularly well-timed. These results are consistent with the holding-based analysis.

Table A.4: Monthly Excess Returns (%) on Transaction-Based Portfolio

	Holding	Aggregate Portfolio			Average Portfolio		
	Period	Buys	Sells	Long/Short	Buys	Sells	Long/Short
CAPM	1 Day	0.431	1.344†	-0.913	0.805	1.215	-0.411
		(0.742)	(0.806)	(1.047)	(0.570)	(0.837)	(0.992)
Carhart 4 Factor		0.531	1.279†	-0.749	0.849	1.195†	-0.346
		(0.770)	(0.657)	(0.905)	(0.562)	(0.699)	(0.843)
CAPM	10 Days	-0.727	0.312	-1.039†	-0.113	0.270	-0.383†
		(0.540)	(0.263)	(0.603)	(0.201)	(0.183)	(0.208)
Carhart 4 Factor		-0.691	0.314	-1.005	-0.036*	0.312	-0.348
		(0.535)	(0.253)	(0.629)	(0.235)	(0.160)	(0.213)
CAPM	25 Days	-0.352	0.134	-0.486	0.228	0.184	0.044
		(0.488)	(0.277)	(0.358)	(0.223)	(0.154)	(0.189)
Carhart 4 Factor		-0.320	0.161	-0.481	0.251	0.181	0.070
		(0.458)	(0.270)	(0.344)	(0.213)	(0.144)	(0.184)
CAPM	140 Days	-0.055	-0.220†	0.165	-0.170	-0.163	-0.006
		(0.190)	(0.114)	(0.187)	(0.185)	(0.122)	(0.163)
Carhart 4 Factor		-0.025	-0.249*	0.224	-0.169	-0.190†	0.020
		(0.193)	(0.107)	(0.189)	(0.164)	(0.115)	(0.129)
CAPM	255 Days	-0.190	-0.098	-0.092	0.005	-0.111	0.116
		(0.144)	(0.085)	(0.169)	(0.184)	(0.122)	(0.139)
Carhart 4 Factor		-0.149	-0.141*	-0.008	-0.017	-0.172	0.155
		(0.131)	(0.075)	(0.138)	(0.191)	(0.120)	(0.117)

Note: Monthly alpha returns in % (with robust standard errors in parenthesis) for calendar time portfolios that mimics the value-weighted and equal member weighted investments in stocks bought or sold by members over the 2004-2008 period. Results are reported for fixed holding periods of 1 day, 10 days, 25 days, 140 days, and 255 days. Within reported value bands, dollar values are imputed using the lognormal model as described in the main text. Long-short is the monthly average return of a zero cost portfolio that holds the portfolio of bought stocks and sells short the portfolio of sold stocks. CAPM alpha is the result from a time-series regression of the portfolio excess return (i.e. raw return minus risk-free rate) on the market excess return. Carhart 4 Factor alpha is the result from a time-series regression of the portfolio excess return on the three Fama and French (1993) mimicking portfolios and the Carhart momentum factor.

$\dagger$, $\star$, and $\star\star$ indicate significance at 10%, 5% and 1% level (two-sided tests) for excess returns.