Leveraging the Informational Advantages of U.S. Legislators: An Empirical Analysis of Stock Trading Performance as Portfolio Optimization Strategies

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A B S T R A C T

This paper takes a look at the potential for retail investors to get above market returns by trading in the same stock and at the same time as U.S. lawmakers. This paper aims to investigate whether or not legislators make abnormal returns over the period of 2020-2023 and whether their strategies can be replicated viably by retail investors. Our findings show that legislators made abnormal returns in the given period accounting to the possibility of non-public information available to them through their political positions. This research also shows the viability of an investment strategy to generate above-the-market returns by replicating the trade positions of the selected legislators. In addition, mimicking a portfolio based on the trade filings was found to yield superior risk-adjusted returns for the level of risk compared with other broad-market indices such as the S&P 500 and the NASDAQ Composite. This result implies that retail investors could arguably derive similar returns solely by closely following the disclosed trades of certain selected legislators. This study suggests the high feasibility of this investment strategy in capitalizing the informational and market timing advantages held by legislators in the long-term investment horizon.

I. INTRODUCTION

Imagine being able to consistently outperform the stock market. Sounds too good to be true, doesn't it? Well, past research suggests that some of the most powerful individuals in American politics may have been doing just that - using their positions of influence to gain access to confidential information that enables them to make highly profitable stock trades.

In the world of politics and finance, the age-old saying “knowledge is power” now takes on a particularly serious meaning in the realm of financial markets. The upbringing about legislative bills' influence and stock market performance has always derived several further questions. More recently, the general mass have been wondering “Do the legislators themselves financially benefit from such early access to information?”. That idea derives an even further proposition to investors “If it’s true, can we also benefit from this?”. Post STOCK Act in 2011, legislators are now required to disclose their stock trades to the public. Sequentially, these notions have led us to investigate the phenomenon even further to address the ultimate proposition of whether or not retail investors could benefit from legislators' information and their disclosure of market trades.

Studies show stock prices rise when firms secure governmental contracts or backing (Lonkani et al., 2012). This implies private policy previews emerging through embedded professional-political relationships. Politicians also get intelligence obscured from regular traders through things like oversight roles and private briefings about industries and overall trends. Past examination demonstrates some politicians performed better than other investors, signifying political information applications for private profit. However, the prevalence and persistence of such asymmetries are still vaguely clear.

Moreover, substantial prior research has found compelling evidence that elected officials have historically benefited from their positions of power to gain access to confidential information that can be leveraged for profitable stock trades. Landmark studies have shown Senators achieving annual abnormal returns of around 12% - significantly exceeding the performance of corporate insiders (Ziobrowski et al., 2004; 2011). Other analyses have identified instances of Republican Congressmen realizing remarkable 32% gains within just one week by trading on private political intelligence (Karadas, 2015).

Furthermore, this period of study is unprecedented and seeks to further illuminate this debate through new approaches. Primarily, it assesses a more recent 2020 through 2023 time frame providing current views on extraordinary events like COVID-19. Also, it analyzes trades from both congressional chambers, addressing gaps from prior analyses focusing only on the Senate. Innovatively, buy-and-hold strategies test duplicating disclosed transactions of high-performing politicians - moving beyond return examination to imitability assessment. Sophisticated computational methods also adjudicate strategic models combining political event timings.

However, the research landscape is mixed, with some studies struggling to find consistent evidence that lawmakers beat the market (Eggers & Hainmueller, 2013; 2014). The varying findings may reflect evolving disclosure regulations and market maturity potentially diluting the informational advantages over time, though asymmetry of access appears to persist.

In summary, this work put forth unprecedented investigations that deepen our understanding of a multifaceted issue involving the convergence of finance, economics, and governance. Our utilization of the latest time frame explores how Congress and Senators' approach to stock investments suggests that legislators may retain informational advantages capable of deriving alpha from the market, even after multiple changes to the regulation. Fundamentally, this research explores whether members of the U.S. Congress and Senate have outperformed the

stock market in their personal trading activities, and if so, whether individual investors can replicate similar returns by imitating their disclosed transactions.

I. A. THEORETICAL FRAMEWORK

Do Congress and Senates outperform the stock market?

There is a situation where members of Congress hold positions that give them access to valuable private intelligence: this information has the capability of dictating stock market movements. Many studies have tried to empirically establish whether this informational edge leads to abnormal returns for Congressional stocks. Some evidence indicates members of Congress do not always outperform (Eggers & Hainmuller, 2013). However, earlier findings show they used their privileged information to beat the market (Ziobrowski et al., 2004; Karadas, 2015). The conclusion would be that Congress in history had been financially beneficial due to such a position, although more effort must be placed on studying how long and how much they gained.

One of the landmark studies in this area was conducted by two papers from Ziobrowski et al. (2004; 2011) who looked into the stock portfolios of Senators between 1993 and 1998. Their findings showed that trading based on Senators' actions yielded a 12% annual abnormal return— significantly higher than what corporate insiders achieved, which was 7.5% over that period. This analysis consequently suggested that senators were exceeding the returns of highly successful market participants by almost 5%. (Jeng et al., 2003). Another paper later in time by Karadas (2015) found powerful Republican Congressmen making abnormal returns exceeding 32% within one week from 2004 to 2010. Both these studies point towards strong evidence: politically informed actors were able to use their confidential knowledge effectively before successful bets on profitable markets were placed.

However, the research by Eggers and Hainmueller (2013) did not find any indication that members of Congress were able to consistently beat the stock market in their investments between 2004 and 2008. They suggested that the abnormal returns noted in previous periods might have been a result of small sample biases or changes post-2002. In a follow-up, when they conducted another study in 2014, they identified local investment advantages — politicians seemed to favor district-focused stocks that outperformed by 3% annually. On the other hand, their non-connected portfolios performed poorly which could imply that amateur traders lack specialized skills needed for certain markets. Though there were still some

selective informational benefits present, it was noted that political portfolios are not always leading universally anymore.

Overall, although current research may not always support this view and instead provide a mix of findings or null results, the majority of earlier academic work points towards members of Congress making stock investments that yielded abnormal returns thanks to private political intelligence. There are several ways through which confidential information reaches the elected officials' portfolios can be optimized— including evolving disclosure regulations and market maturity that might have diluted benefits over time but still leave behind a legacy due to asymmetry of information. The persistence of such asymmetry implies there was some insider trading going on within governmental circles whereby Congress gained the upper hand in realizing above-market returns; such ongoing analyses need not only take into account these changes but also use alternative timelines or differing informational advantages as testable hypotheses based on past performance.

Empirical Evidence of Congressional Informational Advantages

Substantial empirical research provides evidence that members of Congress historically benefited financially from their stock transactions, suggesting the use of non-public information. Their research suggested that Senators had information superior to others, helping them make trades at timings that ensured high returns. More recent studies continue finding indications of informational advantages. For example, Huang and Xuan (2017) analyzed pre-STOCK Act returns finding abnormal performance, while Karadas (2015) reported powerful Republicans realizing substantial gains through private information. Even after regulations, Goodell and Huynh (2020) identified prescient healthcare trades following private briefings. Overall, the literature strongly implies that historically asymmetric access persisted and may still influence trading.

Differing timeframes studied and evolving disclosure regulations complicate forming definitive conclusions. But the weight of academic work suggests Congress at minimum held informational advantages historically. Members interact closely with major firms, receive private briefings, and shape regulations heavily impacting industries (Huang and Xuan 2017; Ziobrowski et al. 2011). Even if advantages have waned recently, multiple mechanisms still transmit confidential insights to politicians. They remain "privy to nonpublic information that affects individual firms, industries, and the economy" enabling informed speculation (Karadas et. al., 2021). Further, the STOCK Act of 2012 did not fully remedy problems as certain Congressmen continued exploiting loopholes (Goodell and Huynh 2020).

To comprehend the reason for the political trading of top performers, it is beneficial to understand the relevant theoretical perspectives. Political economy theories predict that economic exchanges can occur between companies and political figures, companies will donate benefits to allied legislators who in turn will support the companies through preferential policies, contracts, and access to capital (Fisman, 2001; Cooper et al., 2010). Within this context, legislators can acquire important, market-based information about upcoming legislation or policy that will have an effect on specific industries. Researchers have documented that the timely purchase of stocks by individuals with political ties can predict the future performance of companies that are poised to profit from upcoming government action (Goldman et al., 2009). This indicates how time-sensitive political intelligence may flow between allied entities and inform profitable trading strategies.

Lawmakers also occupy vantage points granting privileged previews of broad economic trends and events due to committee roles, networking links, and briefings on emerging issues (Warr, 2012; Karadas et al., 2021). For instance, senators fulfilling oversight or legislative functions touching entire sectors would preview non-public details of burgeoning conditions or initiatives before impacts diffuse publicly 8. The January 2020 COVID-19 episode showed how select Congress members traded healthcare stocks presciently after private briefings, corroborating how intimate political access may endow insights into market-moving disclosures in a formative stage (Goodell & Huynh, 2020). In effect, politicians positioned at information "gateways" could capitalize on advance notice of perturbations likely to move whole markets or industries up or down once publicly known.

Interestingly, studies find only the most politically influential members consistently outperform, intimating crucial differences in informational channels (Karadas, 2015; Karadas et al., 2021). More powerful lawmakers occupying strategic policy positions may enjoy especially proximate conduits for obtaining confidential previews of key legislation, macroeconomic indicators, or deal approvals carrying stock price reverberations. Stronger members may also wield lobbying relationships furnishing commercially expedient tips (Faccio, 2006; Akin et al., 2020). These asymmetries in connectivity and statutory authority afford variable opportunities to covertly capitalize on politically-derived alpha based on impending revelations. The disproportionate returns achieved by select powerful politicians corroborate theories that information asymmetries are amplified by asymmetric political standing.

While some individual members may lack consistent timing ability, analyzing aggregate Congressional trading as a proxy for collective political foresight remains compelling. Prior studies find lawmakers' collective transactions predict future volatility and abnormal returns, supporting notions that joint political intelligence distilled from distributed vantage points offers a predictive blended signal about policy actions influencing markets (Karadas, 2019; Karadas et al., 2021). Even if no single politician systematically profits, the portfolio of all Capitol Hill deal flows could foresee short-term price swings of forecastable policy-driven catalysts once catalyzed into transparency. This hypothesis merits examination of pooled pre-event Congressional investment patterns as an information variable predictive of subsequent returns.

In summary, this theoretical framework explores rationales for why the timely transactions of top-performing politicians may incorporate political intelligence obtained through official functions. Political economy perspectives coupled with empirical findings indicate how lawmakers are positioned to obtain and potentially capitalize upon sensitive disclosures poised to move specific stocks or whole industries in advance of publicity. Meanwhile, asymmetries in connections and influence stemming from uneven political standing may afford variability in exploiting such previews. Aggregate analysis of collective political deal flows also merits investigation as a proxy for mass forecasts of imminent, policy-driven price catalysts.

Political Information as Stock Trading Strategy

The potential for U.S. politicians to leverage informational advantages in stock trading has recently intrigued investors and market observers alike. A recent study argues that investors are able to mimic the return of the top-performing members of Congress by using filed data as buy or sell signals if they are filed close enough to the transaction date (Bauer, 2022). Further evidence also suggests that there are numerous instances where members of Congress abnormally profited from stock trades utilizing the means of non-public confidential information about policy changes (Schweizer, 2011). Moreover, this idea was perpetuated by other scholars, it was found that as a result of their strategic positions, politicians have access to significant, non-public information which results in superior stock-picking performance and market timing (Huang & Xuan, 2017). Conclusively, these findings highlight the possibility of individual investors replicating the same return by imitating the publicly availed information filed by Congress and the Senate on the US government filing website.

Investors have been posing questions regarding the viability of imitating Congress's stock trading strategy. Recent research claimed that a simulated portfolio that mimicked the buy-and-sell stock trades of Congress produced an abnormal annualized return that ranges from 13.61% to 20.60% on a 12-month holding period (Hall et al., 2017). The same research also proclaimed that Congress in strategically powerful committees has an even more abnormal return than those sitting in non-strategic committees. Moreover, another study found that there was an abnormal return ranging from 22.13% to 24.16% in a one-week holding period by the members of Congress (Karadas, 2015). Compellingly, this evidence further accentuates the viability of congressional trading information as a means of stock trading strategy which could feasibly reciprocate similar market-beating returns.

Furthermore, the existing body of research on the performance of congressional stock portfolios presents a clear picture. A study found that members of Congress do not only know what stocks to pick but also know when to buy and sell them (Warr, 2012). Moreover, there is anecdotal evidence and some early academic studies suggesting members of Congress can leverage their access to nonpublic information to generate profitable stock trades (Schweizer, 2011; Ziobrowski et al., 2004; Ziobrowski et al., 2011). Congressional trading activity at the level of markets is also studied in another line of literature. The findings argue that the joint trade by congressmen can forecast future abnormal stock returns as well (Cohen et al., 2012; Karadas et al., 2021; Kim, 2013). Their contention is that politicians have unique precognition about economic or policy-related events that can cause movements in stock prices. This implies that even though individual members may not consistently beat the market when taken as a whole, Congress's collective trading behavior might still be considered significant insight into future market returns. Given these points, we argue that individuals can derive similar returns provided with the same congressional trade signals that are filed to the public.

I. B. ORIGINALITY OF RESEARCH

This research digs deep into several facets that have yet to be thoroughly covered in previous studies in the field of finance and behavioral economics. Primarily, this research is unique as it’s one of the first to comprehensively examine the trades of US lawmakers and its viability as a trading and portfolio optimization strategy. Secondly, this study covers a recent time frame in the period of 2020-2023, which unveils the possible involvement of US Congress and Senate in utilizing insider information before and during the COVID-19 era in order to personally benefit from the global cataclysm, this was first introduced by a study done by Bauer (2022). Thirdly, our research is notably the first to include both the members of the

House of Representatives and the Senate in this timeframe, this is a notable gap to bridge from the previous study done by Zibrowski et al. (2011) which only covered the trades of the U.S. Senate. Conclusively, this research not only extends the academic apprehension but also explores the practical strategy for investors which bridges the gap between theoretical research and real-world application of financial decision-making.

Methodology

Moreover, this study is innovative in its methodological approach. Past studies were primarily focused on the abnormality of lawmakers' trade and the possibility of them trading ahead of time utilizing unpublished information (Hall et al., 2017; Karadas, 2015, Goodell and Huynh, 2020). Our research on the other hand not only analyzed the lawmakers' trades returns, but also actively tested this strategy of imitating lawmakers' trades from both House of Congress and Senates in the latest time frame. Consequently, this approach allowed us to create a simulated portfolio that unveils the efficacy and performance of this strategy in the most recent times, giving us a glance on the further possibility of a more refined qualitative investment strategy.

In this study, we employed the use of advanced computational procedures and complex financial algorithms to evaluate the effectiveness of our investing strategy models. By using machine learning models to analyze imperceptible patterns and predict most probable outcomes. Our research demonstrates a level of qualitative and quantitative analysis that has yet to be examined in the past studies of behavioral economics and finance. Moreover, considering the study of Ziobrowski et al. (2004) and Ziobrowski et al. (2011) which illustrated abnormal returns of Congress due to well-timed trades and non-public information, we take into account key variables such as the market timing of major political events or policy announcements in our models, and aim to isolate the effect of non-public political information on livestock performance.

Furthermore, analyses are performed to directly compare the realized returns of top politically performing traders to relevant market benchmarks over the same period. This offers a controlled setup to empirically test claims that certain members' portfolios continue outperforming. Additionally, while Belmont et al. (2020) implemented a buy-and-hold strategy for securities held by senators, our study developed buy-and-hold replication strategies based on mimicking the disclosed trades of the top 10 politicians, since they did not find sufficient evidence to conclude their political trading generated abnormal returns. These

are also simulated for 2024 to examine if disclosed deal flows indeed provide alpha-generating signals individual investors could mirror for abnormal profits.

Contribution

This research set out to provide new perspectives on the intersection between political and financial areas. The study is focusing on how decisions made in government may correlate with stock market fluctuations, and vice versa. By analyzing open records of congressional trading activity alongside share price movements, the study explored various hypotheses. For example, the study examined why some elected officials seem much better than average in the stock market. The study took a close look at real factors like committee roles and industry interests that could plausibly influence results. The findings of our research can also be considered as part of the bigger picture and the ethical standpoint in relation to political insider trading. With a dose of empirical evidence from the latest years, it helps color the ongoing policy talk on whether or not the current regulations really cut it in terms of drowning down those conflicts of interest waves for congressmen wading into stock trading waters. This facet of our study should be deemed rather significant especially in light of an increased attention coming from both the public eye and regulatory magnifying glass— around financial activities elected elites engage with.

Conclusion

In summary, this research makes several innovative contributions to the field. It is one of the first studies to comprehensively analyze the stock trades of all U.S. lawmakers from both the House and Senate over the recent 2020-2023 period. This provides a more complete picture of political trading activity during and after the COVID-19 pandemic. In addition, the research examines not only the returns on politicians' personal portfolios, but also tests the strategy of replicating their disclosed trades as an actual investment strategy over this timeframe. This is an innovative data-driven analysis on the feasibility and effectiveness of the said strategy. We also take a different path: we use state-of-the-art computational techniques to assess the strategy models, which consider aspects such as the market timing of political events. We aim to deliver fresh perspectives through this interdisciplinary study that does not only provide a new light over this particular issue but also introduces itself from fields with shared boundaries — seeking inspiration from others for further directions — based on recent large datasets and aiming at insight synthesis.

II. HYPOTHESES DEVELOPMENT

There is reasonable evidence to support the idea that members of Congress and the Senate outperformed the stock market in recent years through their investment activities. A few key studies shed light on how politicians have historically profited from their positions.

H_1: Congress and Senates derived higher 12-month returns from stock purchases than the annualized market average in the period of 2020-2023.

One study from Ziobrowski et. al. (2011) examined the stock portfolios of House members and found they consistently beat the market by about 6% annually. They also argue that as elected officials are privy to non-public policy developments, it seems their informational edge served them well in the trading arena. Another analysis by Huang & Xuan (2017) revealed abnormal returns were higher when Congress members invested in companies with close campaign donor or lobbyist ties. They also mentioned that while transparency rules were tightened in 2012, it's possible some exploitation of insider knowledge still occurred. Most disturbingly, a 2015 examination by Karadas (2015) showed Republican politicians realized staggering one-week gains over 30% on their stock recommendations, suggesting outright illegal front-running of confidential briefings and if true, such brazen profiteering could fuel outsized long-term returns.

Taken as a whole, these academic investigations provide compelling evidence some politicians have benefited monetarily from their positions of power over the years (Karadas, 2015; Huang & Xuan, 2017; Ziobrowski et al., 2011). No single study has yet to prove lawmakers outpaced the market from 2020-2023 on its own. However, collectively they demonstrate a consistent pattern of excess returns that lends credibility to the hypothesis under consideration.

H_2: Retail investors can actualize similar 12-month returns by imitating the stock purchase activities of the top-performing Congress and Senates.

Though this is a notable gap that we are bridging in this particular study, especially in the time frame given, there were several pioneering studies covering this possibility of investment strategy in the past. One study highlights that a portfolio that imitates the trading activity of members of Congress yields unusually high returns between 13.61% to 20.60% over a

12-month period (Hall et al., 2017). These abnormal returns were also observed in a study that found a high statistical significance in a large quantity of samples of the positive abnormal returns from the stock purchases made by the Senate (Ziobrowski et al., 2011). The same results were resonated by recent research which argues that there is evidence of stock-picking prowess by a number of senators. Moreover, this strategy is supported by recent evidence that examines legislators' trades that were claimed to be consistent with 'trading ahead of the market' (Goodell & Huynh, 2020). This evidence opens up the possibility of procuring qualitatively and quantitatively selected lawmakers as a portfolio in which individual investors could replicate the stock trades of.

III. DATA COLLECTION

This study obtained insider trading records from a private company, *quiverquant.com*, in monitoring congressional disclosures. This data collection enabled access to over 46,504 trade records for analysis. From which we were able to derive and extract around 7,129 filed purchase records of stocks by both the members of Congress and Senates. Then, the raw data was organized and sorted based on fields such as transaction type, value, date, chamber, etc. Purchase records were isolated to test mimicking political investment strategies through buy-and-hold replications. By aggregating recent transaction data in an under-researched time period and modeling replicability, this research aims to provide contemporary insights. It examines whether informational asymmetries and outperformance from prior work persist within current political environments in the 2020s.

IV. METHODOLOGY

IV. A. Hypothesis I: *Testing Congress and Senates' Collective Average Purchase Return on a 1, 3, 12 month basis.*

The next set of formulas are broadcast in order to explore the aggregate average purchase return of Congress and Senate members across a variety of time horizons: 1-month, 3-month, and 12-month. For each of the formulas sketched below, which was based by Ziobrowski (2004) method, we calculate the average return $(\bar{r})$ over each horizon by following the stocks these legislators bought:

$$\bar{r}_{c,t+1} = \left(\sum_{i=0}^{n} \frac{SP_{i,t+1} - SP_{i.t}}{SP_{i,t}}\right) / n \qquad (1)$$

where $SP_{i,t+1}$ is the stock price on $t+1$ month for the i's stock and $SP_{i,t}$ is the price for i's stock during month t where $t=0$. After getting the sum of return in the equation (1), it is divided by the n numbers of stocks to find the average return $(\bar{r}_{c.,t+1})$. Then, next steps is to find the average portfolio returns for 3 months:

$$\bar{r}_{c,t+3} = \left(\sum_{i=0}^{n} \frac{SP_{i,t+3} - SP_{i.t}}{SP_{i,t}}\right) / n \qquad (2)$$

where $SP_{i,t+1}$ is changed to $SP_{i,t+3}$ to get the prices for i's stocks during $t+3$ months which indicates obtaining stock price after 3 months. Lastly, equation (3) shows the abnormal returns on 12 months:

$$\bar{r}_{c,t+12} = \left(\sum_{i=0}^{n} \frac{SP_{i,t+12} - SP_{i.t}}{SP_{i,t}}\right) / n \qquad (3)$$

The formula allows us to get the average return by dividing the number of stocks which is equal to n. This calculation depicts the average return of the performance of all stocks bought by members of Congress and the Senate. This will average out differences in performance across individual stocks and provide a more general view of effectiveness in Congress and the Senate on the investment field.

These formulas give a stringent way to measure whether copying the stock purchases of Congresspeople and senators may be more rewarding. Not only do the tests measure returns for different time horizons, but they can also pinpoint whether the return on stock picks by such legislators is consistent over different time spans: short, medium, and long. This can be used to establish a pattern of improved performance of investments that is probably due to privileged information or superior investment acumen on behalf of the legislator.

Risk-Adjusted Return

This, therefore, necessitates the analysis of funds using Jensen's Alpha to obtain a more robust measure of the risk-adjusted performance of the legislators' stock picks, over and above simple average returns. According to Jensen (1967), α shows a portfolio's performance that is adjusted for risk within the framework of the Capital Asset Pricing Model, given a portfolio beta and risk-free rate. Moreover, the market risk premium is calculated by multiplying the portfolio beta by the expected market risk premium. The formula used is:

$$\alpha_T = R_p - [r_f + \beta_T(r_m - r_f)] \quad (4)$$

Here, α_T is Jensen's alpha for congress and senates trades, R_p is the actual return of the legislators' collective trades, r_f is the risk-free rate, β_T is the portfolio beta, and r_m is the average return of the market, which is the S&P 500. The expression $r_f + \beta_p(r_m - r_f)$ is the portfolio's expected return based on its beta and the market risk premium. Jensen's alpha, therefore, measures the difference between the legislators collective trades' return and that expected based on its risk; it is positive if the trades collectively outperform and negative if it underperforms. By using the CAPM, we can assess if the legislators' stock picks provided returns higher than what would be expected based on systematic risk as reflected in beta. This risk-adjusted approach helps control for broader market movements and isolates any abnormal performance resulting from other factors such as trading acumen.

By applying the CAPM, we are able to gauge whether the legislators' stock picks provided returns exceeding what would be expected based solely on their systematic risk as measured by beta. This risk-adjusted approach helps control for broader market movements and isolates any abnormal performance resulting from other factors such as trading acumen.

In summary, The formulas combine to give a good structure and a sum total to measure a good structure in combination to measure the returns on investments from the stocks acquired by members of Congress and the Senate. The study will, therefore, make useful inferences about how efficient their strategies of stock picking have been and the benefits associated with tracking their investment activities from the average returns of the collective over 2020-2023 periods of time.

IV. B. Hypothesis II: Testing synthetic portfolio performance on a 12 months + YTD returns basis by imitating the stock purchase activities of the top 10 best performing Congress and Senates after Jan-2023.

In hypothesis 2, we will be evaluating the performance of our portfolio for the period Jan-2023 to May-2024. The formula presented is for calculating the return ($R_{p,t+17}$) of a synthetic portfolio over a 12 month + YTD period, where the portfolio mimics the stock purchase activities of the top 10 best-performing members of Congress and the Senate that we extracted from result I. The formula that we utilize was derived from Ziobrowski et al. (2004)

in which they employed a method called calendar-time transaction-based analysis (Odean, 1999). In their scenario, they constructed portfolios by buying stocks on the same day as politicians and then selling them 12 months later. However, in our scenario, we have a slight modification to the formula and we will be using the filing date of politicians instead of trading date due to the fact that the trading dates are not retrievable until the politicians file them.

$$R_{p,t+12} = \left(\sum_{i=0}^{n} SP_{i,\,t+12} \Big/ \sum_{t=0}^{n} SP_{i,\,t}\right) - 1 \qquad (5)$$

In this formula, $SP_{i,t+12}$ represents the stock price of the i-th stock at time $t+12$ months, while $SP_{i,t}$ represents the stock price of the same stock at the initial time t. The numerator, $\Sigma SP_{i,t+17}$, sums up the stock prices of the n stocks in the portfolio after 12 months. The denominator, $\Sigma SP_{i,t}$, sums up the initial stock prices of the same n stocks. The ratio of these sums gives the total growth factor of the portfolio over the 12-month period. Subtracting 1 from this ratio provides the overall return of the portfolio as a percentage change.

Therefore, our adjusted formula essentially measures the performance of our portfolio composed of the best performing members of congress and senates that we obtained from hypothesis I by examining the growth in stock prices of the chosen equities over a specified period. In addition to monitoring the stock purchase activity of the best-performing legislators, the synthetic portfolio is designed to parallel their investment returns on a long-term basis. The methodology postulates that these top 10 best performing legislators are either privileged with unpublished information or have superior investment acumen; this is why we hypothesize that their stock selections are expected to perform better than the overall market. Such methodology to examine the performance of the portfolio gives an interesting view of what imitation of the influential and presumably well-informed people's investment strategy could bring back.

Moreover, we also utilize the same method from hypothesis I to analyze whether or not our selected members of Congress and Senates' selection of stocks for our synthetic portfolio beat the market and by how much it outperforms or underperforms them.

$$\alpha_P = R_p - [r_f + \beta_P(r_m - r_f)] \qquad (6)$$

The main differences in this formula is that we use multiple markets as a benchmark of our β_P such as the S&P 500 and NASDAQ Composite. Furthermore, our portfolio returns only consist of the trades that were filed after 2023 as a part of our synthetic portfolio simulation.

V. RESULTS

V. A. Hypothesis I Results: *Do Congress and Senates beat the market?*

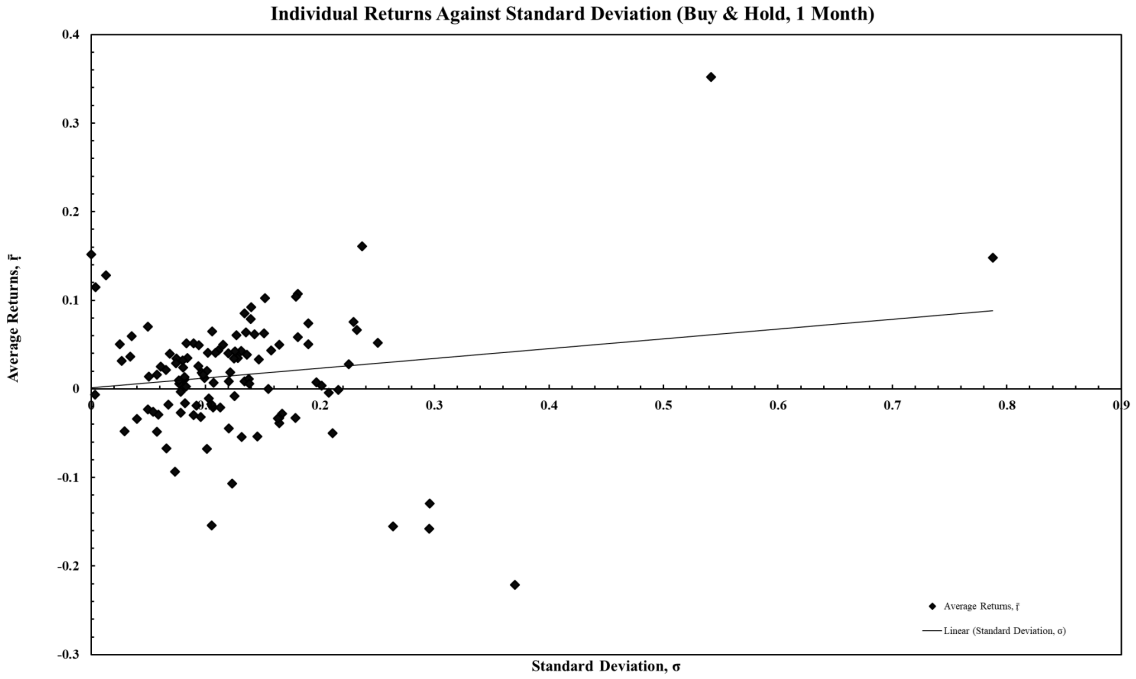
The empirical results for Hypothesis I will be used to test the average number of shares bought by members of Congress and the Senate and their average return over various holding periods, namely, 1 month, 3 months, and 12 months. This will be done by looking at the average return of the stocks that they picked and how it compares to the standard deviation of the returns. Various risk adjusted performance measures will also be calculated and presented in table and graph form for easy analysis. The effectiveness of the legislators' buying and investing activities can be seen via their risk adjusted performance measures compared to the market benchmark which is Roberts Shiller's (2024) S&P 500 30-year annualized average return at 10.51%. For our risk free rate, we utilize the 5-year average of 10Y T-bond. If the risk adjusted performance measure values are above 1, then the legislators' portfolio is able to outperform the market benchmark on average.

Purchases	1-month	3-month	12-month
Mean Trade Return	2.655%	6.787%	19.962%
R_f (10Y T-Bond)	0.276%	0.829%	3.317%
β_p	1.076	1.120	1.306
Average Market Return	0.88%	2.63%	10.51%
Jensen's α	1.734%	3.944%	7.251%

Purchases	Politicians		
	1-month	3-month	12-month
Mean Individual Return	0.016	0.062	0.170
Standard Deviation	0.130	0.215	0.414
Market-Adjusted Return	0.007	0.035	0.065
Risk-Adjusted Return	0.008	0.010	0.013
Interncept	0.001	0.028*	-0.114**
Coefficient, STDEV	0.110*	0.154***	0.684****
Observations (n)		114	

****Significant at the 0.5% level
***Significant at the 2.5% level
**Significant at the 5% level
*Significant at the 10% level

Congress & Senates Individual 1-Month Return Analysis



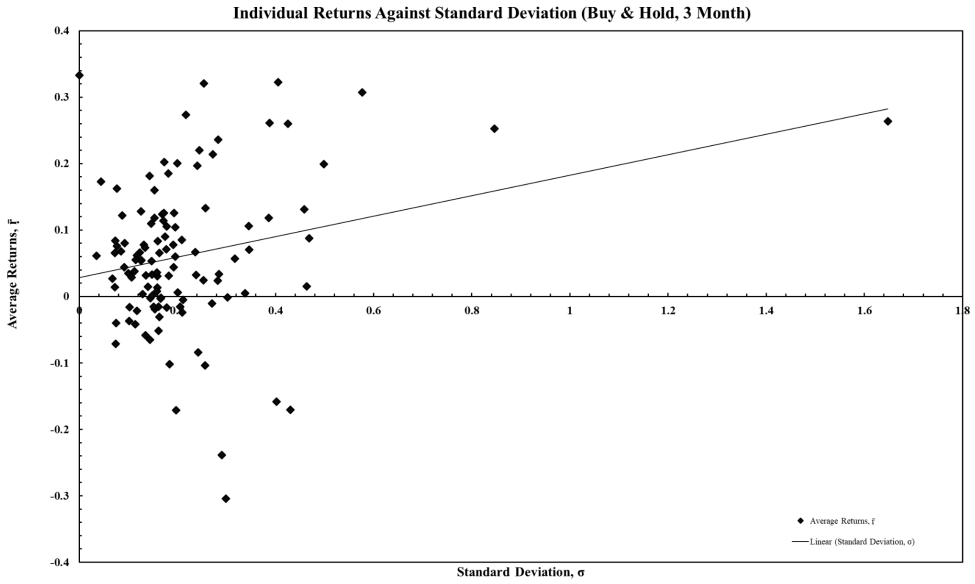
The first figure, which displays individual returns versus individual standard deviation for the 1-month buy and hold strategy proves to be very insightful. The scatter of data points shows that the majority of the stocks fell very close to the origin. This implies that most of the stocks had either very low returns or low standard deviation, or in other words, they were very predictable and did not fluctuate much in value. However, there were some outliers with high returns and deviations from the mean, suggesting that some politicians' portfolios changed significantly in a month. This spread of data points is an important factor as it shows the deviation and risk involved in investing for such short periods of time. As we look at the table summary, we see that the average trade return for the 1 month period was 2.655%, which is substantially higher than the 10 year T-Bond monthly rate which was 0.276% for the same period. This implies that on average, legislators' picked stocks performed relatively well compared to the risk-free rate as well as the market average.

Interpretation of 1-Month β_T and Jensen's α

For the 1 month holding period, the beta (β_T = 1.076) implies that the trade returns are positively related to the market movement. Since the beta is greater than 1, the portfolio is slightly riskier than the market and its returns are likely to amplify it. The α value was found to be 1.734% which implies the expected return adjusting for the risk involved in the portfolio. Since the α value is positive, it shows that legislators' stock picks not only did well

but also had superior risk-adjusted returns making them a good strategy for short-period investments.

Congress & Senates Individual 3-Month Return Analysis

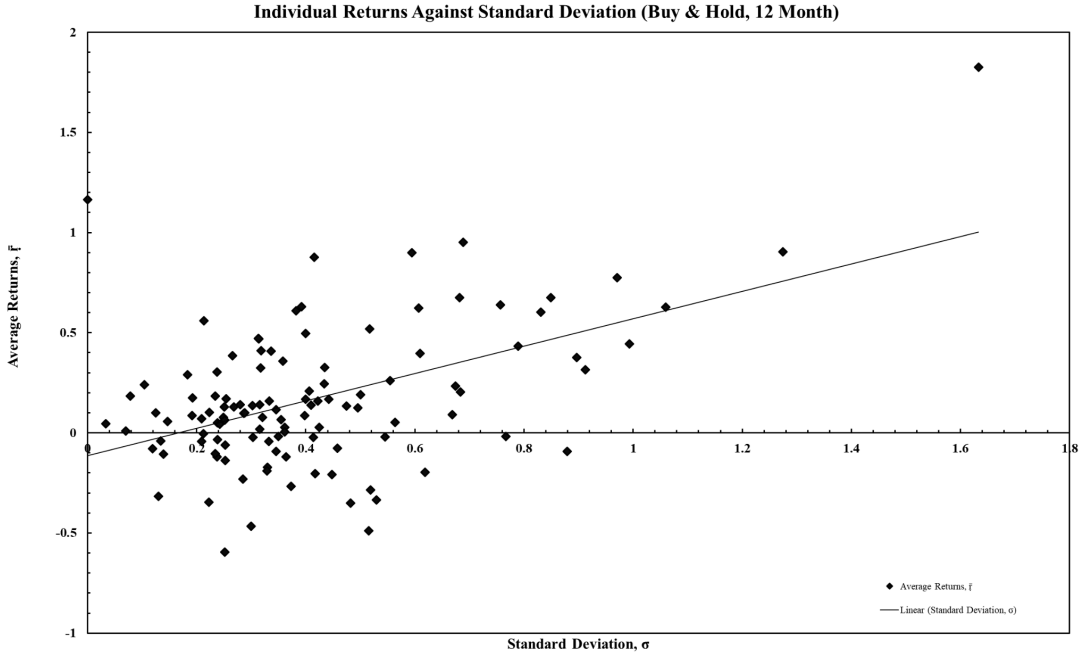


The second figure depicts the returns for a 3-month holding period. As explained before, the returns spread displayed on the graph shows that many individual returns fell very close to the origin implying that they had very low returns and low risk. However, there were some stocks with high gains and higher standard deviations implying higher-risk individual investments that derive higher returns. The average trade return for 3 months was found to be 6.787%, which is again significantly higher than the 10Y T-Bond quarterly rate of 0.829%. This implies that as the holding period increased to three months, the returns were still strong thus supporting the argument that legislators' stock picks were good investment options.

Interpretation of 3-Month Beta and CAPM

The beta for the 3-month window (β_T = 1.120) shows that the correlation with the market is still strong and the portfolio is still more volatile than the market. The α value of 3.944% shows that even when adjusting for risk, returns are still attractive. This suggests that the legislators' stock selections are strong over the medium term and provide attractive returns to justify the risk taken.

Congress & Senates Individual 12-Month Return Analysis



The third chart, which graphs the returns for the 12-month window, shows a more converging dispersion of returns and deviations. This is reflective of the relatively lower variability in individual stock returns over this longer timeframe. The mean trade return for the 12-month window is an enormous 19.962%, which handily beats the 10-year T-Bond annual rate of 3.317%. This return over a longer timeframe demonstrates the potential of the legislators' stock selections over the long term. Higher returns over a longer time frame suggests that these investments have the benefit of time and are either capitalizing on underlying growth trends or market dynamics.

Interpretation of 12-Month Beta and CAPM

The beta (β_T = 1.306) shows that the 12-month portfolio correlates very strongly with movements in the market and the portfolio is more sensitive to market movements compared to the 1-month and 3-month periods. This is a relatively high beta and suggests that the portfolio will gain (or lose) heavily depending on the market return. The α value of 7.251% shows that the portfolio still provides strong risk-adjusted returns over the longer-term horizon. This suggests that the legislators' stock selections are strong and pay an attractive premium over the risk-free rate to compensate for the longer-term holding period. In other words, it's a good long-term hedge despite some fluctuation in performance.

Summary of Hypothesis I Findings

The results of our analysis indicate that the stock-purchasing activities of Congress and Senate members consistently outperform market benchmarks over a variety of time horizons. The mean trade returns for all three periods—1-month, 3-month, and 12-month—are statistically significantly higher than the respective returns from the 10Y T-Bond and market, clearly indicating that these investments are superior. Jensen's alpha values are clearly above zero and substantial in size for all periods, indicating that these portfolios yield higher returns and that they also yield more than their expected risk-adjusted returns in the CAPM model. The coefficients are statistically significant at the highest levels, which further supports the findings. These results suggest that the investment choices of the legislators benefit from privileged information or better investment strategies and hence have valuable implications for market participants. In other words, it is the final implication that can be reached from our analysis: Members of Congress and the Senate in general have superior returns compared to the market average during the period 2020-2023. However, in order to investigate the viability of mimicking lawmakers as a long-term investment strategy, we would have to pick the top 10 best-performing members and assemble them in a portfolio with which we follow their stock purchase activities that will be done in the next step.

V. B. Hypothesis II Results: *Is Mimicking Lawmakers' Trades a Viable Strategy?*

Hypothesis II attempts to measure the performance of a synthetic portfolio for a period of 12 months plus year-to-date returns by mimicking the stock purchase activities of the top 10 best-performing members of Congress and the Senate over the period January 2023 to May 2024. This analysis replicates the exact stock purchases of the selected legislators' and holds them in order to see whether the investment decisions of these legislators yield superior returns than the standard market indices, such as the S&P 500 and NASDAQ Composite. The individual analysis of returns, risk metrics, and regression analysis provides a comprehensive evaluation of portfolio performance over different horizons.

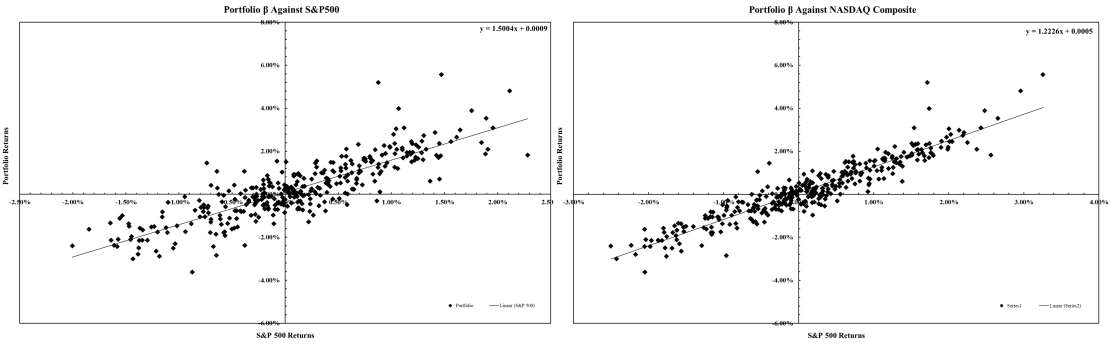
Ranking	Name	$\bar{r}_p$, 12 Months	σ, 12 Months
1	Perdue, David	89.56%	51.60%
2	Sullivan, Dan	70.02%	63.36%
3	Loeffler, Kelly	59.33%	37.70%
4	Greg Gianforte	55.22%	70.46%
5	Gilbert Cisneros	55.16%	61.69%
6	Susan W. Brooks	55.03%	37.82%
7	Mark Green	53.13%	50.39%
8	Dean Phillips	50.73%	54.86%
9	Wyden, Ron	47.43%	38.79%
10	K. Michael Conaway	34.03%	24.88%
⋮	⋮	⋮	⋮
125	Blunt, Roy	-55.47%	30.27%

From Results I, we were able to rank and extract the top 10 best performing legislators from both Congress and Senates. The ranking methodology employs sorting the average return of their purchase portfolio from the highest to the lowest. Sequentially, we extracted the best performing 10 regardless of the embedded standard deviation due to the fact that this research is aimed at the long-term performance of a portfolio. Moreover, the selected 10 legislators had around 1292 trades from 2020-2022, higher average trading activities than the rest of the members, which increases the confidence value of this analysis and simulation.

Top 10 Performers' Returns and Volatility

The table of rankings shows the top 10 legislators based on their 12-month returns and associated standard deviations. The highest, David Perdue, realized a return of 89.56% with a standard deviation of 51.60%, indicating that these results come with a very high degree of volatility. Close on his heels are Dan Sullivan and Kelly Loeffler, realizing returns of 70.02% and 59.33%, respectively, with very high levels of volatility. That is, these numbers highlight the high-risk, high-reward nature of the stock picks by these top performers. The data also show a substantial dispersion in returns and risks among the top 10 legislators, indicating that investment strategies and risk appetites are very heterogeneous among them.

Comparison with Market Indices



The return scatter plots of a synthetic portfolio versus the S&P 500 and NASDAQ Composite indicate a strong positive relation between them. For each graph, the linear regression lines indicate a general higher volatility compared to the market, with a slope of 1.5004 with respect to the S&P 500 and 1.2226 to the NASDAQ Composite. The high beta values indicate that the synthetic portfolio is more volatile than the market, that is, it tends to amplify market movements. What this slope appears to suggest is that the upturns and downturns in the synthetic portfolio are multiplied at a greater degree than the market indices for a given level of market return, reflecting superior performance in the bull market and more subdued performance in the bear market. The highly positive betas confirm that the portfolio is closely tied to market movement.

12-Month Synthetic Portfolio Metrics

Purchases	Top 10 Politicians Synthetic Portfolio	
	12-Month Synthetic Portfolio	
Mean Individual Return	0.570	
Standard Deviation	0.492	
Markets	S&P 500	NASDAQ Composite
Market-Adjusted Return	0.444	0.432
Risk-Adjusted Return	0.402	0.410
Interncept	0.0009**	0.0005**
Coefficient, S&P500	1.500****	1.223****
Multiple R	0.848	0.935
R Square	0.719	0.873
Adjusted R Square	0.719	0.873
Observations (n)	348	

****Significant at the 0.5% level

***Significant at the 2.5% level

**Significant at the 5% level

*Significant at the 10% level

The table annexed here summarizes in detail the metrics for the 12-month Synthetic Portfolio. It is noteworthy that though the mean of individual returns was 0.570, the standard deviation was rather high at 0.492, reflecting that returns were wildly variable, though this is not a concern at a long-term investment basis. Against this, the market-adjusted return for the S&P 500 index was estimated at 0.444, with a risk-adjusted return of 0.402, both being statistically significant at 0.5%. The high multiple R and R-squared values of 0.848 and 0.719, respectively, suggest that there is a great deal of explanation power in the model. In general, the NASDAQ Composite results show somewhat lower betas than those from the S&P 500, but risk-adjusted returns are about the same.

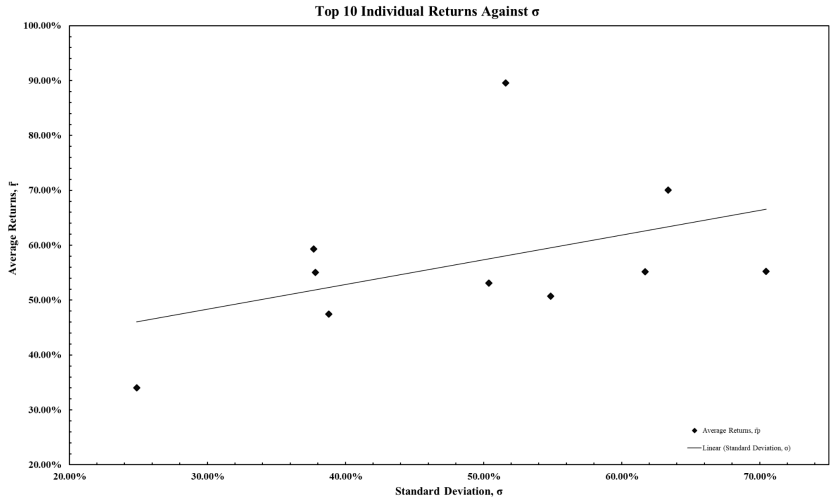
Furthermore, the coefficients of the regression models are statistically significant and enhance the robustness of the results. The intercept terms are significant at the 0.5% level, which says that the Synthetic Portfolio statistically significantly generates excess return, net of the market. The R-squared values for each market index are high, indicating that a great deal of variation in the portfolio returns can be explained by the model, adding credibility to the apparent outperformance observed.

Jensen's Alpha and Market Outperformance

Purchases	12-Month Synthetic Portfolio	
Mean Trade Return	56.964%	
R_f (10Y T-Bond)	4.250%	
Markets	S&P 500	NASDAQ Composite
β_p	1.500	1.223
Average Market Return	12.58%	13.80%
Jensen's α	40.216%	41.038%

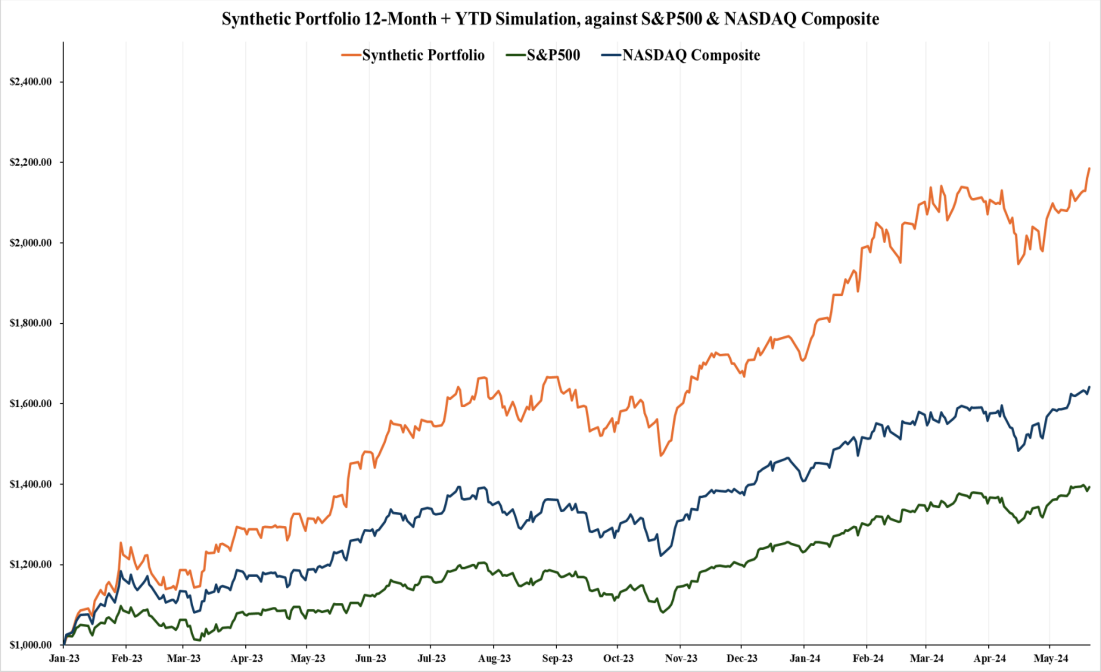
Computing Jensen's alpha for the synthetic portfolio comes back as significantly over-performing. For the S&P 500, Jensen's alpha is 40.216%, while for the NASDAQ Composite, it is 41.038%. These high alpha values imply that the synthetic portfolio outperformed the market, and it did this with a big margin considering the adjustment in risk. This therefore would tend to indicate that the stock picks of top legislators yield returns that are far higher than what would be predicted based on their risk levels; that is, more generally, mimicking these investment strategies may be valuable.

Risk-Return Tradeoff



The graph plotting the top 10 individual returns against their standard deviations shows a positive relationship between risk and return. The graph indicates that those legislators with higher returns also have relatively higher standard deviations, which mean more volatility. On average, taking more risk is associated with higher return. As indicated by the linear trend line, this is in accordance with the basic principles of financial theory. The tradeoff underscores the need for risk management in achieving superior returns. However, the long-term horizon of this research aims to put less concern in the daily or even weekly fluctuation as long-term investment strategy is at play.

Simulated Synthetic Portfolio Performance Jan 2023 - May 2024



The following time series graph can demonstrate how the synthetic portfolio performed compared to the S&P 500 and NASDAQ Composite from January 2023 to May 2024. The synthetic portfolio is persistently upward, which already demonstrates higher cumulative returns over the period. The divergence between the synthetic portfolio and the market indices becomes more pronounced as time progresses, thus suggesting that the market timing effects and perhaps stock selection of the legislators in our portfolio are superior to the market average.

Implications

To sum up, the synthetic portfolio that replicates the stock buying activities from the trades filing of the top-10 best-performing members of Congress and the Senate for the period January 2023 to May 2024 exhibits significant outperformance versus standard market indices. The high mean returns, statistically significant Jensen's alpha values, and highly positive coefficients of beta all indicate that the investment decisions of these legislators yield superior risk-adjusted returns. The results would suggest that the selection of stocks and market timing by top legislators could be a very effective investment strategy, and, therefore, similar returns could be replicated by retail investors. These results also beg some important questions about the sources of investment success of these legislators and the potential implications for market transparency and fairness.

VI. CONCLUSION

This research aims to investigate the informational advantages held by U.S. legislators and, with that, their implications for stock trading performance. Analyzing the stock transactions of the U.S. Congress members between the periods of 2020 to 2023, the study ascertained whether the legislators always outperform the market and, if yes, whether the trading strategies can be imitated by retail investors to attain similar gains.

In the past and with recent data, it has been deemed that U.S. legislators have used non-public information to achieve abnormal returns in high proportions on their stock trades. The special access of the legislators to information through their committee roles, private briefings, and oversight functions has put them in very unique positions to make informed investment decisions to outperform market averages. While the STOCK Act was signed into law in 2012, aiming at increasing transparency and reducing insider trading among legislators, research results indicate that informational advantages are still in play, especially during the COVID-19 periods. Notably, key studies have been able to demonstrate that senators and representatives tend to benefit financially from their position of power by making trades based on information not yet available to the public. The findings indicate that legislators still achieved abnormal returns, pointing out the failures and loopholes in existing regulatory frameworks.

The research tested the possibility for retail investors to replicate stock-purchase activities of top-performing legislators. This further showed from the analysis that substantial returns can be yielded from emulating the trades, outperforming common market indices like S&P 500 and NASDAQ Composite. Such returns infer that the investment strategy by legislators can be a lucrative approach for retail investors. Moreover, by performing transactional data and employing complex financial algorithms, the study has engineered portfolios that emulate the disclosed trades of the top-performing politicians.

This paper ratifies that in the most recent timeframe, stock trades by legislators still managed to return higher than the general market. More importantly, the simulated synthetic portfolio shows significant outperformance, which depicts that the information edge held by the top legislators can be effectively leveraged by retail investors to gain similar returns. Furthermore, Jensen's alpha values and other risk metrics showed that these portfolios constantly outperformed expected returns based on their risk profiles, further solidifying the notion that the informational advantage held by the legislators indeed translates to market-beating investment strategies. This robust performance, adjusted for risk, spotlights the potential value of closely tracking legislative trades as an actual investment strategy. The timing of trades in

relation to political events and market conditions, as shown in the comprehensive approach of this study, also brings nuanced understanding into how political information influences stock performance.

The implications of this study are far-reaching for financial markets and regulatory bodies alike. For investors, evidence shows that it can be a good investment strategy to closely track the disclosed trades of U.S. legislators since it has a great potential for over-market returns. This, however, also brings ethical and legal concerns over fairness and transparency of financial markets. Moreover, further research would be appropriate to investigate the sustainability in the long term of imitating legislators' trades as an investment approach. Also, the effect of other factors including political affiliation plus committee memberships and specific industries through separate ways could be beneficial in highlighting more critical clues and peeling back the layers into what constitutes this dynamic pile-up of informational advantages in political stock trading. This work contributes meaningfully to ongoing conversations where finance, politics, and ethics intersect. It deeply explores both upsides and downsides around capitalizing on political expertise for stock choices. Through earnest assessment, the researchers shed light on this complex topic affecting us all. By broadening comprehension, we gain tools to engage such important issues in a balanced, well-considered way - seeking mutual understanding over easy answers.

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