Phantom of the Opera: ETF Shorting and Shareholder Voting*

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Phantom of the Opera:
ETF Shorting and Shareholder Voting

Abstract: The short-selling of exchange-traded funds (ETFs) creates "phantom" ETF shares, trading at ETF market prices, with cash flows rights but no associated voting rights. Unlike regular ETF shares backed by the underlying securities of the ETF and voted as directed by the sponsor, phantom ETF shares are backed by collateral that is not voted. Introducing a novel measure of phantom shares both of the ETF and corresponding underlying securities, we find that increases in phantom shares are associated with decreases in number of proxy votes cast (for and against), and increases in broker non-votes, the vote premium, and value-reducing acquisitions.

Keywords: Exchange-Traded Funds, Proxy Voting, Vote Premium, Short Interest, Operational Shorting, Authorized Participants, Collateral, Broker

JEL Codes: G11, G12, G14, G23, G34

Introduction

With the dramatic increase in passively invested assets across the globe, index funds and exchange traded funds (ETFs) play an increasingly important role in corporate governance.[1] In contrast to active managers, for whom exit is a governance strategy, passive investors must rely on voice – voting and engagement – to take an active role in governance.[2] To this end, there is a small but growing academic literature on the governance role of passive investors. On one hand, the inability of passive investors to 'exit' a given security may naturally increase their use of the 'voice' channel, and the institutional attention associated with passive ownership may enhance governance in the firm (e.g., Appel, Gormley and Keim (2016), and Edmans, Levit and Reilly (2019)). On the other hand, the implicit trust of the market's price for a given security and the inherent cost minimization approach may result in a one-size-fits all, pro-management approach to governance (e.g., Bebchuk, Cohen and Hirst (2017), Lund (2018), and Heath et al. (2020)).

While the debate regarding the efficacy of voting decisions by passive funds is in its early stages, our paper addresses a more foundational issue: whether or not the shares of stock underlying the ETFs are voted at all. To be clear, our evidence does not suggest that the ETF sponsor (e.g., Blackrock) does not vote the underlying. Instead, as an unintended consequence of security design in shorting, we show that for the constituents of the ETF basket, shares of the firms' stock that are not held by the ETF sponsor and would otherwise be voted, are held in collateral accounts where the holder abstains from proxy voting. This abstention effectively decouples the

[1] According to the Pensions & Investments' annual survey in 2020, worldwide indexed assets under management have risen to $15.35 trillion (pionline.com). See Bebchuk and Hirst (2019) for a recent discussion of governance implications of index/mutual funds.

[2] See Hirschman (1970) for a detailed discussion of the 'exit' and 'voice' responses, and Yermack (2010) for a survey of research on shareholder voting and corporate governance. Recently, Brav, Jiang and Li (2019) study the mutual fund voting in proxy contests, finding active funds being more pro-dissident than passive funds. Bolton, Ravina and Rosenthal (2020) analyze voting patterns of institutional investors from proxy voting records to infer institutions' ideology.

cash flow from the voting rights of the corresponding ETF share. We refer to these as "Phantom ETF Shares". We demonstrate that such phantom shares are associated with decreased voting and we examine the governance implications of this decrease.

To better understand the origin of phantom ETF shares, consider the governance implications of three different investments depicted in Figure 1: (i) purchasing the individual stocks belonging to S&P 500 index, (ii) investing an S&P 500 index mutual fund, and (iii) purchasing an S&P 500 ETF. For an investor who purchases the 500 underlying securities of the S&P 500 in the appropriate weights, each $1 invested generates $1 of proportionate voting rights in those securities, where the investor would make the voting decisions. For an S&P 500 index mutual fund investment, each $1 invested generates $0.98 of proportionate voting rights where the investment advisor chooses how each proxy item is voted. The loss of $0.02 in voting rights relative to the individual stock example is due to the 2% the average fund in our sample holds in cash to accommodate the daily redemptions. For an investor purchasing S&P 500 ETF, we find that each $1 invested generates much lower proportionate voting rights in the underlying securities.

There are many similarities between an index mutual fund and ETF investment. However, as also highlighted in the Figure 1, one of the most important differences between the two is that an investor purchases a mutual fund share from the investment advisor, whereas ETF shares are bought and sold on the secondary market. As a result, the purchase of an ETF share occurs as part of a long sale 86.7% of the time (i.e., as a fraction of the value-weighted transactions) and part of a short sale 13.3% of the time. While we explain the underlying mechanism in greater detail in Section 1.1, the importance of this distinction is that an ETF purchased as part of a long sale is backed by underlying securities that are voted by the ETF sponsor, such as Blackrock. In contrast, an ETF purchased as part of a short sale, which we refer to as a phantom ETF share, is backed by

collateral held by the securities lender/broker. If that collateral consists of the underlying securities, these securities would not be voted as explained by the International Securities Lending Association (ISLA):

> *"An ad hoc survey of lenders confirmed that lenders have not, nor ever would exercise any voting rights in respect of securities held as collateral. The majority of written governance policies are worded specifically to exclude the voting of collateral."*[3]

In other words, for the 13.3% of ETF shares that are purchased via a short sale (the phantom ETF shares), the underlying securities backing those shares are sidelined in the voting process. While the ETF shares purchased via a long sale have the same cash flow and voting rights as an index mutual fund, the ETF shares purchased through a short sale have the same cash flow rights, but no associated voting rights. This, combined with the 2% cash position underlying the ETF long-sale portfolio, generates $0.85 in voting rights relative to the $1 invested in common stock.

The focus of this paper is the impact of these "Phantom ETF Shares" on proxy voting. As investors increasingly invest in equities through ETFs, the sidelining of the underlying securities used as collateral has the potential to distort the voting process in public firms. To address this issue, we first construct a measure of phantom ETF shares ("Phantom ETF Shares") using short interest data regarding the ETF. Then, we translate this measure of phantom ETF shares to phantom underlying shares ("Phantom Shares") using portfolio holdings data for the ETF. With this measure of phantom ownership of the underlying securities in hand, we examine the impact on proxy voting outcomes on a sample of 9,631,901 voting records on 6,556 different US public companies from 1,150 ETFs over 2004-2018. Consistent with our notion that phantom ETF shares translate to phantom shares that are not voted, we find that increases in phantom shares

[3] The context of this quote and the policy of other securities lenders regarding the voting of collateral is presented in Appendix C.

around the voting record date are associated with a decrease in voting, both for and against, and an increase in broker non-votes for the underlying securities. Effectively, an increase in phantom shares is associated with an increase in sidelined votes of the underlying.

To ensure our analysis is not simply picking up a dual trend in ETF ownership and voting patterns over time, we focus our analysis on director election votes. Before 2010, the Securities and Exchange Commission (SEC) allowed brokers to vote shares "without voting instructions from the beneficial owner" on uncontested elections of directors, which were deemed "routine" matters in shareholder meeting. This rule changed formally on January 1st, 2010 making such election of directors "non-routine", so that brokers would not be able to vote without instructions from the investors.[4] Repeating our exercise with director elections only and accounting for the change in policy, we find a strong positive relationship between phantom shares and broker non-votes, once brokers were no longer allowed discretion in voting such shares. However, before 2010 we find no relationship between phantom shares and broker non-votes, suggesting that brokers widely voted such shares in director elections. We repeat this test around a similar 2012 rule change that further narrowed the definition of routine matters and find similar results.[5]

If phantom shares increase the percentage of sidelined votes, they have the potential to affect the probability of a given proposal passing or failing. To assess the impact of phantom shares from this perspective, we model the probability of shareholder proposals. As this setting relies on the possibility that the phantom shares would be voted by the ETF, we modify our total phantom shares variable and assign a vote direction (for/against) to the phantom shares based on how the

[4] See Order Approving Proposed Rule Change to Eliminate Broker Discretionary Voting for Election of Directors, SEC Release No. 34-60215 (July 1st, 2009), available at: https://www.sec.gov/rules/sro/nyse/2009/34-60215.pdf.

[5] The 2012 rule change affected items to de-stagger the board, implementing majority voting, eliminating supermajority voting, use of written consents, rights to call a special meeting, and other anti-takeover provisions (https://www.investor.gov/introduction-investing/general-resources/news-alerts/alerts-bulletins/investor-bulletins/voting).

ETF sponsor voted the shares they had in custody. In the case of both shareholder proposals and close votes, an increase in phantom shares that would have been voted in favor of the proposal, but were not due to being sidelined, decreases the probability of these proposals passing. Similarly, in the case of shareholder proposals, an increase in phantom shares that would have been voted against the proposal but were sidelined, increases the probability that shareholder proposals pass.

We then look at the pricing implications of phantom shares. In particular, we analyze the relation between phantom shares and the value of shareholder voting rights (i.e., voting premium) around the shareholder meetings. We calculate the voting premiums of underlying shares using the methodology introduced by Kalay, Karakaş and Pant (2014). This methodology essentially synthesizes a non-voting share using options, and obtains the voting premium by subtracting the synthetic (non-voting) share from the underlying (voting) share and normalizing the difference. We find that voting premiums increase with the phantom shares, around the record date for special meetings, as well as for meetings that are contentious. Analyzing whether phantom shares predict the contentious meetings, we find no effect. This suggests that the potential selection bias in firms with more phantom shares is unlikely to explain the increase in the voting premium in the presence of phantom shares. Together with the earlier vote outcome results, our findings suggest that phantom shares make the voting process less efficient by reducing the quantity of shares voted (and increasing the broker non-votes), which in turn is reflected in an increase in the price of votes attached to the shares around the contentious shareholder meetings.

As an important robustness check, we also analyze the suggested collateral mechanism for our findings in two ways. First, we use correlations of the ETFs and their underlying stocks to proxy for the 'quality' of the collateral. While an investor could use the entire basket of underlying securities for collateral (e.g., all 500 stocks in the S&P 500), she could also select a subset of those

securities that are more liquid (e.g., 50 of the 500 stocks in the S&P 500). The stocks the investors would be most likely to use are those that are more highly correlated with the return on the S&P 500 index. Using the correlation between each underlying security and the overall index it belongs to as a proxy for the 'quality' of the collateral, we examine how that correlation relates to the number of broker non-votes for a given stock. Consistent with our conjectured mechanism, we find that the increase in broker non-votes with phantom shares is highest for the underlying stocks that are most likely to be held as collateral.

Second, we examine how phantom ETF shares created from both 'directional' and 'operational' short-selling relate to broker non-votes. While our earlier discussion of Figure 1, focused more on short sales of ETF shares in the secondary market (i.e., on 'directional' short-selling), Evans, Moussawi, Pagano and Sedunov (2020) document an alternative channel through which phantom ETF shares might be created – "operational short-selling".[6] Distinguishing between these two channels helps to rule out possible alternative causality. If phantom ETF shares were only created when an informed short-seller shorts the ETF, perhaps our results would simply reflect the incorporation of that information in the market. However, Evans et al. (2020) show that in contrast to the potential negative information contained in directional short-selling, operational short-selling is purely liquidity driven and does not signal future underperformance for the underlying securities of the ETF. Analyzing these two ETF short-selling channels, we find that the

[6] While ETF shares are bought and sold by investors at bid-ask spreads posted by market makers, the supply of ETF shares adjusts due to the actions of Authorized Participants (hereafter, APs). ETF sponsors authorize APs to arbitrage the difference in prices between the basket of underlying securities (e.g., the 500 stocks in the S&P 500) and the ETF (e.g., SPY, an ETF tracking the S&P 500). Through this mechanism, the supply of ETF shares is adjusted according to investor demand. To enhance ETF liquidity and exploiting additional trading settlement periods, however, Evans et al. (2020) show that APs sell ETF shares that have not yet been created (operational shorting) and therefore are not backed by shares of the underlying securities. Similar to the short-selling case, these shares can be bought and sold at ETF prices, granting investors economic ownership. However, because the AP has not purchased and delivered the basket of underlying securities to the sponsor, these ETF shares do not have corresponding voting rights exercised by the ETF sponsor.

operational shorting channel is stronger in our setting. This suggests that our results are unlikely to be somehow driven by informed directional short-selling in the ETF.

As a final test of the governance implications of the phantom shares, we examine the stock reactions to acquiring firms in mergers. Li, Liu, and Wu (2018) demonstrate the important governance role of acquirer shareholder voting in M&A activity, particularly in cases where the newly acquirer-issued shares to finance the deal are more than 20%. Consistent with their results, we find that high levels of phantom shares, interacting with poor firm governance, are associated with value-reducing acquisitions. To further analyze this channel, we use the 20% share issuance cut-off rule examined in Li, Liu, and Wu (2018) and find that our effect (distortions in shareholder voting negatively affecting acquirer returns) is only present in acquisitions that require a shareholder vote. These M&A results support the idea that the distortions in the proxy voting process associated with phantom shares have negative effects on firm governance and value.

While this paper is the first to examine the impact of phantom ETF shares on voting, prior work has explored the issue of short-selling, phantom shares and empty voting for traditional equities (e.g., Christoffersen et al. (2007), Kahan and Rock (2008), and Welborn (2008)). This literature makes the important point that securities lending may be associated with over-voting both directly, as market participants borrowed shares over the voting record date in order to vote them, and indirectly, as multiple claims of ownership may give rise to more than one vote per share. In contrast to this finding of over-voting, our results suggest that phantom ETF shares are associated with reduced voting. The difference stems from two sources. First, this early literature about securities lending and proxy voting helped, in part, to motivate changes in voting regulation, including the Dodd-Frank rules about broker voting on non-routine matters, that helped to curb over-voting. Second, unlike borrowing or short-selling individual equities, the connection between

phantom ETF shares and voting on the underlying is not direct. Rather, ETF shares in and of themselves have no associated voting rights; it is the securities underlying the ETF shares that have associated voting rights. The nature of these underlying securities (e.g., cash plus a futures overlay as collateral for an ETF loan) and the location of these securities (e.g., the actual stocks underlying the ETF are held by a broker as opposed to the sponsor/custodian) determine whether or not they are voted.

The accuracy and transparency of the US proxy voting process has also increasingly been under the spotlight of the SEC. Following up on the SEC's "Concept Release on the U.S. Proxy System"[7] on July 2010 and the "Roundtable on the Proxy Process"[8] on November 2018, which provide the blueprint for the proxy system in the US and discuss "proxy plumbing" problems such as over- and under-voting, Investor Advisory Committee (IAC) of SEC has recently called for a deeper investigation of the impact of securities lending on voting rights on July 2019.[9] We believe our paper makes a timely contribution to this inquiry.

Overall, our paper contributes to the literatures on corporate control and governance by introducing novel measures of the separation of cash flow and voting rights: phantom shares of the ETF and the corresponding underlying securities. We also show that, separate from index funds as alternative passive investment vehicles, this disassociation of economic exposure and voting rights arises from the unique short-selling and liquidity provision aspects of the ETF market and distorts the shareholder voting, a fundamental mechanism in corporate governance. Given the dramatic increase in ETF assets worldwide, this is an important difference relative to other passive vehicles that should give investors, managers and regulators pause. This study also contributes to

[7] https://www.sec.gov/rules/concept/2010/34-62495.pdf
[8] https://www.sec.gov/files/proxy-round-table-transcript-111518.pdf
[9] https://www.sec.gov/spotlight/investor-advisory-committee-2012/recommendation-investor-as-owner-subcommittee-proxy-plumbing.pdf

the ETF pricing literature by highlighting the importance of the value of voting rights in the underlying shares, which has not been examined by the literature previously, but is priced as our evidence suggests.

The rest of the paper proceeds as follows. Section 1 describes the data used and our approach to estimating ETF and underlying security phantom shares. Section 2 looks at how proxy voting outcome are affected by phantom shares. Section 3 examines the pricing implications of phantom shares. Section 4 discusses the collateral mechanism of our findings, the directional vs. operational shorting channels, and the governance implications of phantom shares. Section 5 concludes.

1. Institutional Background, Data and Methodology

1.1. Phantom ETF Shares and the Disassociation Mechanism

To help clarify the mechanism that leads to this dissociation of cash flow and voting rights, consider the example of a single ETF share (e.g., a share of the SPY ETF tracking the S&P 500). Figure 2 depicts the relationship between this regular ETF share and the proxy voting of the underlying securities. This ETF share, purchased by Investor #1, is held through the investor's broker (e.g. Fidelity Investments) and is backed by the shares of the underlying basket of securities (e.g., the S&P 500 portfolio), which are held by a third-party custodian and voted by the ETF sponsor (e.g. State Street) on behalf of the investor. In the case of this single share, the investor has access to both cash flow and voting rights.

Figure 3 depicts what happens, when the broker's securities lending agent (e.g. Goldman

Sachs[10]) lends the original ETF share to a short-seller generating what we refer to a phantom ETF share. In this example, the brokerage firm (e.g. Fidelity Investments) contracts with a third-party securities lender (e.g. Goldman Sachs) to oversee their lending activities. A short-seller borrows the ETF and provides the collateral in the form of the underlying securities (e.g. the 500 stocks of the S&P 500 in the appropriate amounts) or cash equivalents for the loan. The short-seller then sells this "Phantom ETF Share" to ETF Investor #2.

With one ETF share owned by two different investors, how are the cash flow rights and voting rights affected for each investor? Both ETF Investors have the same cash flow rights, either from the original ETF share or guaranteed by the broker and paid by the short-seller. Dividends, ETF price appreciation and the ability to sell the share at any time are unaffected. The voting rights, however differ between the two shares. The original share is still backed by the underlying securities held by a third-party custodian and voted by the ETF sponsor (e.g. State Street) on behalf of the investor. The phantom ETF share, however, is backed by the collateral held by the securities lender. If this collateral does not correspond to the ETF's underlying securities (e.g. cash plus a S&P 500 futures overlay), then it would not be associated with any proxy voting. For ETFs, however, this collateral may consist of the underlying securities (e.g. the portfolio of S&P 500 securities). In contrast to the underlying shares backing the original share and both held and voted by the ETF sponsor, these securities are held by the broker/securities lender, and may not be voted except for 'routine' matters due to the limitations on broker voting. Effectively, these underlying shares have been sidelined from the voting process due to their status as collateral.

[10] While over the time period of our study, Goldman Sachs served as the third-party security lender for Fidelity Investments, in May of 2019, Fidelity moved their securities lending operation in-house.

1.2. ETF and Proxy Voting Data

The database used in our analysis is constructed from a number of different sources. The ETF data, including holdings, is obtained from the CRSP Mutual Fund Database. Our initial ETF sample consists of all US Equity ETFs, excluding levered ETFs, from 2004 until 2018. Panel A of Table 1 shows the summary statistics for the ETF-holdings report data observation level. The average ETF size is $1.752 billion and the median ETF size is $147.2 million. Consistent with a largely passive investment approach, the average expense and turnover ratio are 0.515% and 50.96%, respectively.

In order to better characterize the underlying holdings of the ETFs and to add firm specific variables, we then merge the holdings data with CRSP and Compustat. We also then add aggregate institutional holdings data from the Thomson-Reuters Global Ownership database as well as aggregate index and active mutual fund ownership from the CRSP holdings database used above. Panel B of Table 1 has the average statistics of these firms including firm age and institutional ownership.

(~Insert Table 1 about here~)

While the databases mentioned above are more commonly used in academic research, our final data source, the ETF-level and firm-level voting data, may not be as familiar to academic readers, so we describe this database in greater detail. Specifically, we use N-PX data compiled by Institutional Shareholder Services (ISS) as the source of our ETF voting record information. In 2004, the SEC began requiring mutual funds and other registered management investment companies to disclose proxy vote records for the most recent twelve months ending June 30 of

each year via the form N-PX with August 31 as the filing deadline.[11] The filing requires detailed disclosure on the policies and procedures used to guide proxy vote decisions, typically reported in the Statement of Additional Information (SAI), along with the proxy voting record for each security in each mutual fund portfolio.[12] It includes a brief identification of the matter voted on, information about whether the matter was proposed by the management or a shareholder, how the fund voted (e.g., for or against the proposal, or abstain; for or withhold regarding election of directors), and specifically whether the fund's vote aligned with management's recommendation or not.

In order to map the ISS N-PX data on WRDS with our ETF holdings data, we extract the ETF ticker information from the header of the N-PX filings using the WRDS SEC Analytics Suite. Specifically, we first extract the detailed series information, class/contract information, as well as the share class name, and ticker symbol for each N-PX filing, then map this data to the ISS N-PX records by matching the N-PX FileID to the SEC's accession number. This merged sample consists of 9,631,901 voting records on 6,556 different US public companies from 1,150 ETFs.

We then merge this fund-company level voting data with the company voting results dataset also compiled by ISS. This dataset provides information on the vote results reported in the 8-K or 10-Q filing subsequent to the firm's annual meeting. As ISS describes in their data manual, the vote results represent the summary of the voting by all investors, including ETFs. These results include the total votes for, against, abstaining, broker non-votes, and the vote outcome along with the ISS vote recommendation for each item. The dataset also includes the vote requirement

[11] Final Rule can be found in this link: https://www.sec.gov/rules/final/33-8188.htm. Details on the contents of N-PX filings are in the N-PX pdf instructions document available in this page: https://www.sec.gov/reportspubs/investor-publications/investorpubsmfproxyvotinghtm.html.

[12] For example, many State Street ETFs (SPDRs) report their voting records under the SPDR Series Trust (CIK: 0001064642) registrant. See, e.g., the individual vote records on each security held by 80+ SPDR ETFs in the 12-months period ending in June 2011 can be found in the following report filed on August 30, 2011: https://www.sec.gov/Archives/edgar/data/1064642/0000950123-11-081354-index.htm.

threshold, an indication of how the percentage voting threshold necessary for a proposal to pass is calculated, which is primarily relevant for proposals requiring supermajorities. The vote outcome is derived from the comparison of support rate and required threshold disclosed by company. If the support rate is greater than or equal to the threshold, "Pass" is recorded, or "Fail" otherwise.[13]

This dataset also includes two important dates for each annual shareholder meeting. The meeting date on which the vote is held, and the record date on which the vote proxies are issued using the ownership of shareholders as of that date. We use the record date in the ISS vote results dataset to construct the actual ownership of ETFs and their holdings of individual securities in the ETF portfolio likely mapping their voting right claims.

1.3. Methodology to Construct Phantom ETF and Underlying Shares

While the actual voting decisions of ETFs are an important control in our analysis, the primary variables of interest are the phantom ETF shares and their associated underlying securities (phantom shares). In this section, we describe our approach to estimating phantom shares from short interest data (phantom shares).

Our estimate of phantom ETF shares is simply the difference between the total number of ETF shares held by investors, and the actual number of ETF shares created and outstanding. Whenever the number ETF shares held is larger than the number of ETF shares created, the extra shares held are, by definition, phantom ETF shares. While it might seem at first that these two numbers should be equal, recall that short selling of ETF shares increases ETF share ownership without increasing the underlying number of ETF shares outstanding. Instead, existing shares are loaned to short-sellers who increase ownership by selling that same ETF share to another investor.

[13] Vote outcomes can also be recorded as "Not Disclosed", "Withdrawn" or "Pending" for votes that are respectively not disclosed, eventually withdrawn or are currently pending.

To estimate phantom ETF shares, we start with the daily ETF shares outstanding data[14]. We then match this to biweekly ETF short interest ratio data from Compustat. Because the short interest ratio is a percentage of the existing shares outstanding, multiplying the two generates our estimate of the phantom ETF shares. The summary statistics for these inputs are given in Panel C of Table 1.[15]

With the phantom ETF share measure in hand, we then estimate our measure of phantom share ownership of the underlying securities as the product of the phantom ETF share ratio (phantom ETF shares to ETF shares outstanding) and our estimate of the total shares of the underlying owned by the ETF. We begin with the most recent antecedent ETF holdings data observation, which gives the number of shares of the underlying held by the ETF.[16] Because the holdings report date does not necessarily coincide with the voting record date, we then need to estimate the shares of the underlying held by the ETF on the record date of interest. Using the daily ETF TNA data and accounting for changes in the share price of the underlying security relative to the other securities in the portfolio, we estimate the number of actual shares of underlying held by the ETF on the record date. We then multiply the underlying shares held by the ETF on the record date by the ratio of phantom ETF shares to ETF shares outstanding to estimate the phantom share ownership of the underlying. Overall, this process gives us two measures that we will use in the

[14] We calculate the number of shares held by the ETF, implied by, CRSP, Morningstar, and Bloomberg and use the value from the data provider (CRSP, Morningstar, or Bloomberg) that gives us the number of implied shares that is closest to the number of shares reported on the N-PX filling. We then use CRSP (Morningstar) [Bloomberg] for the implied shares at the daily level, until the next N-PX filling, where we then repeat the process of comparing the implied shares to the actual reported.

[15] As an alternative to this method, we also repeat the analysis using the difference between the number of ETF shares held by institutional investors from Thompson and the ETF shares outstanding as our proxy for phantom ETF shares. The results using this proxy are similar to those reported here and are available upon request.

[16] While the reporting frequency of ETF holdings has increased over the sample period, some ETFs do not report holdings monthly. To account for the possibility that a fund holds the stocks but did not report holdings in the current month, we calculate implied shares for up to two months if holdings are not reported in month $t+1$ or month $t+2$ after a holdings disclosure in month t.

voting regression: shares of the underlying and phantom underlying shares, which we simply title phantom shares.

We then add the fund voting records on day *t–3* before the record date of the company vote. As the ISS fund vote file does not report the number of shares voted by the ETF, we assume that the ETF votes all of the underlying shares owned. From this, we assign all of the shares owned by the ETF in the underlying as being voted either for or against, using the ETF vote direction indicated in the ISS data. For each company-meeting-agenda item, we then aggregate all ETF shares voted for or against the item to create an aggregated measure of ETF votes for or against the agenda item. Lastly, as phantom shares should not have voting rights, we do not assign a vote direction to those shares. Instead, we only use the aggregate number of phantom shares implied by ETF ownership, in the underlying stock at *t–3* before the voting record date. This gives us our final sample of company votes, where each agenda item from a meeting has a total number of ETF underlying shares voted for or against, and the total number of phantom shares.

Table 2 gives the summary statistics for overall voting data (i.e., for, against, broker non-vote) and the voting by ETFs, index mutual funds and implied underlying phantom shares. While the overall average ETF share ownership across our sample is low at 3.489%, the phantom share average using short interest, for example, is relatively high in comparison. Of the total ETF share ownership (phantom plus regular ETF underlying shares, 4.065%), phantom share ownership of the underlying is 14.2%. The dollar or value-weighted measure of phantom shares indicates an almost three times larger percentage of the underlying shares outstanding.

(~Insert Table 2 about here~)

1.4. Estimating Phantom Shares: An Example

To illustrate our approach to measuring phantom shares, we explore a specific example of the

SPDR S&P Retail ETF, XRT and the April 5th proxy voting record date associated with one of the holdings of this ETF, Netflix.[17] The number of XRT shares outstanding on March 31st, 2011 (the t-3 trading date relative to the proxy voting record date) is 19,800,000. While this is the actual number of ETF shares that have been created, to calculate the number of phantom ETF shares, we first identify the short interest ratio at this time which is 736%. This short interest ratio means that every XRT share that is outstanding has been borrowed and sold approximately seven times. Using this short interest ratio we calculate the number of phantom ETF shares as just over 145.7 million, so the total number of ETF shares owned, both regular and phantom, is approximately 165.5 million. Through either repeated lending and short-selling of the same XRT shares or operational shorting, only 10% of the total estimated shares held by investors are backed by underlying securities held at the ETF sponsor. In other words, only 10% of the total estimated shares approximately held by investors have associated voting rights.

Using this estimate of the total ETF shares held by investors (outstanding ETF shares + phantom ETF shares), we can then calculate the implied total number of shares of Netflix shares owned and the number of phantom Netflix shares. As of the same date, 1.29% of the XRT ETF assets were held in Netflix, which translates to 456,956 total shares, of which 402,287 are phantom underlying shares and 54,669 are regular underlying shares which are voted. While the SEC N-PX filing only requires ETFs to disclose the direction of their vote (i.e. yes, no, abstain) it does not require them to disclose the number of shares voted. However, for a small subset of our data, the actual shares of underlying security voted by the ETF are disclosed. In the case of XRT, they disclose that they voted 38,216 shares of Netflix, in line with the 54,669 regular underlying shares from our estimate above.

[17] We focus on the record date for our analysis because it is on this date that the ability to participate in the proxy vote is determined. The actual proxy voting date for Netflix in this example was June 3rd, 2011.

2. Phantom Shares and Proxy Voting

2.1. Preparation of the Sample for Analysis

For each company-meeting date, our merged database gives us the total underlying shares owned by ETFs and total phantom shares. These measures will be consistent across all agenda items for each company meeting. Our measures of ETF underlying shares voted for and ETF underlying shares voted against will vary across each agenda item of a company meeting, as ETFs may vote in different directions. Our three main dependent variables will be the total number of shares voted for the agenda item, and the total number of shares voted against the agenda item, and the total number of broker non-votes. Finally, we scale all of our main variables of interest and dependent variables by the total number of potential votes outstanding[18], reported by ISS.

Once we have the total ETF underlying shares, voted for and against, as well as phantom shares for each company-meeting-agenda item, we filter out agenda items that may have characteristics that could weaken the identification of the voting rights of phantom shares. First, we exclude any agenda item where the vote requirement to pass is equal to 1%. We do this as these votes are formalities and could, in most cases, be passed by the votes of insiders. Second, we exclude any director election. We do this, as SEC rule changes regarding broker voting may cause uncertain behavior of broker non-votes. Prior to 2010, brokers were allowed to vote their shares in director elections. However, after 2010 the SEC no longer allowed the brokers to vote their shares in director elections. In a later test, we will repeat our main tests on the sample of only director elections. We also exclude the ratification of auditors, as brokers can vote uninstructed on these

[18] In Appendix Table A1, we repeat our main test using the reported base of the vote from ISS, votes for + votes against, votes outstanding excluding dual class firms, and finally shares outstanding excluding dual class firms.

items throughout our sample, as well as any item that did not pass or fail. Excluding director elections and applying these additional filters leaves us with a sample of 49,568 company-meeting-agenda item observations.

To determine the relationship between phantom shares and shareholder voting, we run three main specifications, using total shares voted for, total shares voted against and broker non-votes in the company vote as the dependent variables. As phantom shares do not have voting rights, we do not assign the shares as being voted for or against the agenda item; instead, we include the total number of phantom shares in each of our main specifications. As the ETF underlying shares do have voting rights, we include ETF underlying shares voted for in the votes for regression, and ETF underlying shares voted against, in the voted against regression. Finally, the aggregate measures of both phantom shares and ETF underlying shares are included in the broker non-vote regressions.

Each regression includes firm fixed effects, and we cluster standard errors by firm and meeting. We control for the size and age of the firm, as well as the book to market and return on assets. Additionally, we control for different types of ownership in the firm: index mutual funds (IMF), blockholders, and total institutional ownership. Lastly, to ensure that recent firm performance may be affecting our results, we included a six-month momentum measure for each firm-meeting. These filters leave us with a total of 4,300 firms and 27,616 meetings in our main test sample.

2.2. Relation of Phantom Shares to Votes Cast

Table 3 presents our main results examining the relationship between phantom shares and shareholder votes cast in company meetings. In Columns 1 to 3 of Table 3, we define phantom shares using the short interest outstanding in the ETF. In Columns 1 and 2, we find that an increase

in the number of phantom shares leads to less voting, both for and against, in company meetings, consistent with our hypothesis that phantom shares will lead to less voting. In each specification, we find that our measure of ETF underlying shares voted for and ETF underlying shares voted against is positively and significantly related to the number of votes for, and number of votes against, respectively.

(~Insert Table 3 about here~)

In Column 3 of Table 3, we examine the relationship between phantom shares and broker non-votes. If phantom shares are being held by brokers, either as a result of shorting, or AP failures to deliver, then we should see these shares show up in the number broker non-votes cast. Here, we again find results that are consistent with our initial hypothesis that phantom ETF shares do not carry voting rights in the underlying stocks. In Column 3 we find that phantom shares are related to an increase in the number of broker non-votes cast in company votes. Importantly, we also find that our aggregate measure of ETF shares has no positive significant relationship with broker non-votes. As these ETF shares have both economic and ownership rights, we should not see a relationship between them and broker non-votes.

Overall, the results in Table 3 provide support for our initial hypothesis that for certain shareholders of ETFs, their shares do not carry ownership rights in the underlying stock which in turn lead to less votes cast in company meetings.

2.3. Rule Change: Broker Voting on Non-Routine Matters

In Table 4, we extend our study of phantom shares and votes cast using a discreet cut-off in the ability of brokers to vote their shares in director elections. Prior to 2010 the SEC allowed brokers to vote in director elections. A rule change was proposed and passed in 2009 that stated brokers were no longer allowed to vote their shares in director elections (Akyol, Raff and

Verwijmeren (2017)). In Table 4, we split our phantom share variables into pre- and post-2010, and use this rule change as a clean setting to examine the voting rights of phantom shares. For this test, we replicate the regressions in Table 3, but run them on a sample of only director elections.

(~Insert Table 4 about here~)

In Column 3 of Table 4, we use a piecewise regression to examine the relationship between short interest phantom shares and broker non-votes around the SEC rule change. Prior to 2010, we find an insignificant coefficient on the phantom shares measure; a sign that brokers were actively voting their shares in director elections. After the rule change, we find a positive and significant coefficient on the phantom share measure. In Columns 4-6, we repeat this test using a rule change in 2012 similar to the change in director elections, but focused on items such as de-staggering the board of directors, implementing majority voting, eliminating supermajority voting, use of writer consents, rights to call special meetings, opt outs of anti-takeover provisions. In Column 6 of Table 4, we again find a positive and significant on the post 2012 phantoms shares, when voting was not allowed, and no relationship between phantom shares and broker non-votes prior to 2012. Using these settings in Table 4, we are able to examine the voting rights of phantom shares around an exogenous change to the voting rights of brokers in director elections.

These findings corroborate the role of brokers holding phantom shares, either as a result of (directional) shorting, or AP failures to deliver (operational shorting), in diminished voting of underlying shares. Considering that phantom shares are backed by collateral held (and/or hedged) by brokers, security lenders, APs, or market makers, in Section 4.1, we provide further evidence and discussion on the collateral mechanism of phantom shares not being voted. In Section 4.2, we split the ETF shorting into directional shorting and operational shorting, and analyze the role of these two shorting channels.

2.4. Voting Outcomes: Proposal Pass Rate

While ETF phantom shares may increase broker non-votes, the question remains if there is any material impact on voting outcomes. In Table 5, we estimate the probability of passing for shareholder proposals (column 1), close votes within 5%, (Columns 2 and 4) and again use the broker voting rule change from 2012 (column 4). All variables are standardized, and coefficients are given as odds ratios.[19] Hence, coefficients greater than 1 indicate and increase in the probability of an item passing, while coefficients less than 1 indicate a decrease in probability.

(~Insert Table 5 about here~)

While in Tables 4 and 5, we focused on total phantom shares, in this table we separate phantom shares into those that conceivably would have been cast for and against the proposal, based on the ETF's decision to vote the actual shares held by the ETF for or against. While the actual votes cast by ETFs and Index funds for and against these important proposals positively and negatively, respectively, affect the probability of passing as expected. Phantom shares, on the other hand, have the opposite effect. In the case of shareholder proposals, an increase in phantom shares of the underlying associated with an ETF that otherwise cast its vote in favor of the proposal, decreases the probability of the shareholder proposal passing. Similarly, in the case of close votes, an increase in phantom shares of the underlying associated with an ETF that otherwise cast its vote for the item, decreases the probability of the close vote item passing. In Column 3, we find the same effect for items included in the 2012 rule change. In Columns 1 to 3 we exclude any item where the base of the vote used to calculate percentage of support, and ultimately if it passed or failed, is shares outstanding. We do this, because in these instances, a broker non-vote will act as an against vote as they cannot be voted for or against, but will add to the denominator. In Column

[19] In this case, the odds ratio reported represents a one standard deviation increase in the independent variable.

4, we use this to further test the effect of phantom shares on pass rates. Using the close votes setting from Column 2, we interact our total phantom shares measure with items where the base is shares outstanding. Consistent with broker non-votes acting as against votes in these settings, we find that irrespective of the direction the ETF sponsor may have voted their shares, the presence of phantom shares reduces the likelihood that close votes pass when the base is shares outstanding. When shares of the underlying are not voted because they are held by the broker as collateral as described above, the phantom shares that would have been voted in favor of (against) a proposal, are negatively (positively) affect the probability of the proposal passing.

3. Phantom Shares and Voting Premium

In the previous section, we analyze the effect of phantom shares on the quantity of the votes cast. In this section, we analyze the impact of phantom shares on the price/value of shareholder voting rights (i.e., the voting premium). Given the inefficiencies created at the voting process and outcomes with the phantom shares discussed in the previous section, we expect such inefficiencies to reflect on the prices of the votes, the voting premium.

3.1. Constructing the Voting Premium

We calculate the daily voting premium following the method in Kalay, Karakaş and Pant (2014). This method relies on two observations: (i) a stock is a package of two components: cash flow rights and the control/voting rights (Manne (1964)), and (ii) option prices derive their value from the cash flows of the underlying stocks, but not from the voting rights. Hence, subtracting the price of a non-voting stock synthesized using options, $\hat{S}$, from that of the underlying stock, S, we obtain the value of voting rights in the stock. In order to compare the voting premium over time and across companies, we normalize the price differential between the underlying (voting) stock

and the synthetic (non-voting) stock by the price of the underlying stock.

Formally, we calculate $\hat{S}$ using put-call parity for an option pair with the same maturity T and strike price X, and adjust for the early exercise premiums (EEPs) of American options and for dividends (DIVs) paid before the options mature:

$$\hat{S} = C - P + PV(X) + adjustments\ for\ EEPs\ and\ DIVs, \quad (1)$$

$$Voting\ Premium = (S - \hat{S}) / S, \quad (2)$$

where *C* and *P* are the American call and put option prices, respectively, and *PV(X)* is the present value of investing in a risk-free bond with face value *X* that matures at time *T*.

Kalay, Karakaş and Pant (2014) show that liquidity of stock or option, or other non-control-related frictions do not drive the changes in the voting premium around shareholder meetings. In addition, they show that the voting premium is positive on average and increases with the expected maturity of the synthetic stock.[20]

The voting premium is time-varying and depends on the probability of control contest and the economic significance of the contest (Zingales (1995)). Consistently, Kalay, Karakaş and Pant (2014) also document that voting premium increases around events in which control would be expected to matter and be valuable. These events include special shareholder meetings and/or contentious meetings with close votes, episodes of hedge fund activism, and merger and acquisition events.

The method we employ has an important advantage, compared to other common ways to calculate the value of control in the literature using dual-class shares (see, e.g., Nenova (2003) and Zingales (1994)) or controlling block sales (see, e.g., Barclay and Holderness (1989) and Dyck

[20] Voting premium for options with maturity *T* can be annualized with the following formula (Kalay, Karakaş and Pant (2014): 1 – (1 – voting premium)$^{365/T}$. Given that the average voting premiums across firms is 13.6 basis points (Table 2) and the median (average) maturity of options employed in our analysis is 32 (64) days, the corresponding annualized voting premium is 1.55% (0.78%) of the stock price.

and Zingales (2004)): we can estimate the market value of voting rights for a large number of widely held public firms at any point in time.

Voting premium reflects private benefits consumptions and associated managerial inefficiencies, priced by the market. Karakaş and Mohseni (2019) and Gurun and Karakaş (2019) use the same voting premium we employ. The former finds that firms with staggered boards on average have higher voting premium, which is in line with the entrenchment view on staggered boards. The latter documents that the voting premium increases with the unexpectedly negative earnings, particularly around the shareholder meetings, consistent with an increased probability of capital gains from improving the inefficient management of the firm.

3.2. Options Data

We use the OptionMetrics database at the WRDS for the calculation of daily voting premium. OptionMetrics is the standard data set used for studies on options and provides data on US equity options starting from 1996. This database provides end-of-day bid and ask quotes, trading volume, open interest, and option-specific data, such as implied volatility, maturity, strike price, for the American call and put options on stocks traded on US exchanges. The database also provides the stock price and dividends of the underlying stocks and zero-coupon interest rates.

Voting premium calculation requires availability of both call and put option prices. To construct the synthetic stock, following Kalay, Karakaş and Pant (2014), we form option pairs which consist of matched call and put options on the same underlying stock and with identical strike price and time to maturity. We drop option pairs for which the quotes for either the call or the put options are locked or crossed. The option prices are taken as the midpoints of the bid and ask quotes, which are the best closing prices across all exchanges on which the option trades. Since the options are of American style, we compute the early exercise premium for both the call and

put options using the binomial option-pricing model.

In our calculations, we use the most liquid option pair for each firm-day, which is defined as the one with the highest option volume (minimum volume of call and put), closest-to-the-money and shortest maturity. We use only the options with positive volume. Using the closest-to-the-money options also minimizes the potential downward biases in the voting premium due to the early exercise possibilities of the American options (see Kalay, Karakaş and Pant (2014) for a more detailed discussion).

3.3. Relation of Phantom Shares to Voting Premium

Kalay, Karakaş and Pant (2014) find that voting premium increases around shareholder meetings, particularly when the control contest is contentious (e.g., special meetings, meetings with close votes). Following Kalay, Karakaş and Pant (2014), we measure the median voting premium for each firm [–5,0] trading days before the cum-date, which is 5 trading days prior to the record date (to allow for settlement of the stock trades) for the upcoming shareholder meeting. As robustness, we also use a [-5,5] window around the cum-date. Kalay, Karakaş and Pant (2014) show that the vote premium increases around special meetings. Following this, we include in the regression an indicator variable of whether or not the meeting is a special meeting. Outside special meetings, we also identify items in annual meetings that are likely to be contentious. To do this, we define items as "*Critical*" if they meet any one of four requirements: (i) an annual meeting and the vote difference was less than 10%, (ii) an annual meeting/special item, (iii) a proxy contest, or (iv) ISS recommended voting against the item. To measure the "contentiousness" of the meeting, we then aggregate the number of critical items.

(~Insert Table 6 about here~)

In Table 6, we find that voting premiums increase with the phantom shares, around the

record date for special meetings as well as annual meetings that have more critical items.

(~Insert Table 7 about here~)

Analyzing whether phantom shares do predict special meetings or more contentious meetings, we find no positive effect of critical items (Table 7) on vote premiums. This suggests that the potential selection bias in firms with more phantom shares is unlikely to explain the increase in the voting premium in the presence of phantom shares. Together with the earlier results with the vote outcomes, our findings suggest that phantom shares make the voting process less efficient by reducing the shares voted (and increasing the broker non-votes), which in turn is reflected in more increase in the voting premium particularly around the contentious shareholder meetings.

4. Further Analysis

We document so far that ETF shorting leads to creation of phantom shares that are not voted with increased broker non-votes and voting premium. In this section, we further deepen our analysis and discuss issues related to the collateral mechanism of our findings, the directional vs. operational shorting channels, and the governance implications of phantom shares.

4.1. Collateral Mechanism

If the underlying companies of phantom ETF shares are backed by collateral held (and/or hedged) by brokers, security lenders, APs, or market makers, how do they vote?

European Securities and Market Authority (ESMA) conducting a “Call for Evidence on Empty Voting” on September 14th, 2011 (ESMA/2011/288), was fact-finding for possible rule-making and coincidentally asked institutional market participants the following question relevant to our paper:

> *"Internal policies relating to voting practices*
> *Q5. What kind of internal policies, if any, do you have governing the exercise of voting rights in respect of securities held as collateral or as a hedge against positions with another counterparty?"*

Consistent with the responses of other market participants reported in Appendix B, International Securities Lending Association (ISLA) answered the above question as follows [emphasis added]:

> *"An ad hoc survey of lenders confirmed that* ***lenders have not, nor ever would exercise any voting rights in respect of securities held as collateral****. The majority of written governance policies are worded specifically to exclude the voting of collateral."*

The answers to ESMA's questionnaire confirm our conjecture that phantom shares that are backed by collateral held (and/or hedged) by brokers, security lenders, APs, or market makers, are not voted. To further illustrate this collateral mechanism, in Table 8, we examine the effect that underlying shares likely to be held in collateral (and/or as a hedge) on the relationship between phantom shares and broker non-votes. We proxy collateral/hedge with the correlation between ETF returns and underlying stock returns, as stocks in the ETF basket that have higher return correlations with the ETF are more likely to be used as a collateral and at the same time a hedge for the phantom ETF shares.

(~Insert Table 8 about here~)

In Columns 1 (2) of Table 8 we use the rank of the value weighted average (equal weighted) correlation between the stock and the ETFs. In Columns 3 and 4 we take the rankings from Columns 1 and 2, respectively, and sort stocks into deciles. Using each collateral proxy measures, we find that the increase in broker non-votes is stronger for stocks more likely to be held as collateral. This result is consistent with our initial hypothesis and is in line with the above

quotes from ESMA.

4.2. Directional vs. Operational ETF Shorting

Our analysis so far has focused on the total ETF shorting. However, as discussed before, the shorting could be directional or operational. Unlike directional shorting, which consists of borrowing ETF shares with the goal to sell them for speculative or hedging purposes, operational shorting is associated with ETF shares that have not yet been created but are already sold by market makers and authorized participants (APs), which is allowed under market making exemptions. Evans et al. (2019) argue that operational shorting is an important component of overall short interest in ETFs and is essential component in the ETF liquidity provision and in the process to arbitrage the difference in prices between the ETF and its basket of underlying securities. Through this mechanism, the supply of ETF shares is adjusted according to investor demand. Similar to the short-selling case, these shares can be bought and sold at ETF prices, granting investors economic ownership. However, because the AP has not purchased and delivered the basket of underlying securities to the sponsor, these ETF shares do not have corresponding voting rights exercised by the ETF sponsor. Similar to the shorting selling setting, the AP may hold cash, derivative hedges or the underlying securities in inventory to hedge the AP's exposure to the sold ETF share. If the underlying securities are held as collateral, they are less likely to be voted due to restrictions on broker voting.

In Table 9, we split the ETF shorting into directional shorting and operational shorting, and analyze how much each of the two shorting channels contribute to our findings. We use share lending data from Markit Securities Finance database, which is available on a daily frequency to create a 'directional' phantom underlying shares variable using the Total Demand Quantity (TDQ),

computed as the quantity in shares on loan by borrowers tracked by Markit.[21] We then merge the TDQ data with the biweekly short interest data from Compustat to create a biweekly series of total short interest as well as directional shorting, and we compute operational shorting as the difference between the two.[22] We scale all three variables by ETF shares outstanding. Our descriptive statistics show that operational shorting (directional shorting) represents, on average, two-third (one-third) of ETF short interest.

Using the difference between our original phantom underlying share variable, total share interest, and the 'directional' phantom share variable to create the 'operational' phantom underlying share variable, we rerun our baseline regressions and report the results in Table 9. Our results show that operational shorting contributes to the increase in broker non-votes, while the coefficient on Column 2 on directional shorting is positive but insignificant. When including both measures in the same regression in Column 3, However, we do find that the magnitude of the 'operational' phantom share measure remains positive and significant.

(~Insert Table 9 about here~)

4.3. Corporate Governance: Acquirer Returns

As a final exploration in the implications of phantom shares and voting, we look at relationship between phantom shares and corporate governance, specifically acquirer stock returns in Table 10.

(~Insert Table 10 about here~)

A large literature analyzes stock market reactions to merger and acquisition (M&A)

[21] TDQ is the most expansive measure of total borrowing provided by Markit. It differs from BOLQ as follows: in addition to shares borrowed by Markit borrowers from Markit lenders, TDQ also includes shares borrowed by Markit borrowers from non-Markit lenders, as well as shares loaned by Markit lenders to non-Markit borrowers.
[22] We clean TDQ time series by dropping instances when TDQ goes 10X above or drop more than 1/10 below a moving average of TDQ.

announcements, interpreting them as evidence on whether M&As create value for shareholders. A general finding is that M&As often do no add much shareholder value, particularly for the acquiring firms (see, e.g., Andrade, Mitchell and Stafford (2001) and Chen, Harford and Li (2007)). Andrade, Mitchell and Stafford (2001, p.111) also find that "the negative announcement period stock market reaction for acquiring firms is limited to those that finance the merger with stock." A reason for these findings is the poor governance of the acquiring firms in which under monitored/disciplined managers may take value-destroying acquisition decisions that may benefit themselves on the expense of the shareholders (see, e.g., Jensen (1986), Morck, Shleifer and Vishny (1990), Lang, Stulz and Walkling (1991), and Masulis, Wang and Xie (2007)).

Because phantom shares give the holder cash flow rights but no voting rights, we might expect those firms with large phantom share ownership to underperform in acquisitions as firm governance is hindered by the lack of voting rights. Put otherwise, the unintended distortion effect of phantom shares in shareholder voting we documented above, may further weaken the monitoring and discipline over the firms, which in turn may lead to value loss for shareholders. From one perspective, increased phantom shares of the underlying in tantamount to the creation of a dual share class with the same cash flow rights but no voting rights.

The dependent variable in Table 10 is a 4-factor alpha (Fama-French 3 factor plus momentum) obtained from a daily regression from days $t–10$ to $t+1$ or $t–1$ to $t+1$, where t is the M&A announcement date.

Looking at the results in Panel A of Table 10, we see that high levels of phantom shares interacting with poor firm governance (proxied by E-index of Bebchuk, Cohen and Ferrell (2009)) are associated with worse M&A performance, particularly in M&As financed with stock. These results suggest that phantom shares are associated with reduced value for shareholders.

We further examine the distortion in shareholder voting and its effect on M&A performance using the 20% share issuance rule. The rule requires a shareholder vote for any merger that is financed with stock and intends to issue more than 20% of shares outstanding. This setting was previously used by Li, Liu, and Wu (2018)[23] to show the effects of shareholder voting on M&A acquirer returns. In Panel B of Table 10, consistent with the distortion in voting caused by phantom shares, we find lower acquirer returns for M&A's where the intended share issuance is above 20% of shares outstanding and require a shareholder vote.

5. Conclusion

This paper analyzes the impact of ETFs on the shareholder voting on the underlying shares of the ETFs. We introduce novel measures of the wedge between the economic ownership and the voting rights of underlying shares through ETFs, the phantom (ETF) shares, and analyze the implications of phantom shares for the voting process, voting outcomes, voting premium, and firm performance.

We find that phantom shares are costly for the investors, since they do not convey voting rights to the ETF owners, but are sold at the full price of share, which reflects both cash flow rights and voting rights. Phantom shares also seem to create inefficiencies within the voting process by increasing the broker non-votes, and decreasing both the shares voted for and the shares voted against in the shareholder meetings. This becomes particularly important in cases with close votes. Relatedly, we find phantom shares to be positively related to the voting premium, particularly during the meetings with contentious votes.

Our findings highlight an important phenomenon with the recent surge of ETFs and have

[23] We thank Kai Li for generously providing their share issuance variable.

policy implications. In particular, due to the existence of phantom shares through ETFs, there could happen inefficiencies regarding the exercise of control rights, and in turn regarding the corporate governance and market for corporate control, for the firms with phantom shares particularly during times the markets are bearish and/or when the votes are critical and very valuable. This is particularly important when considered against the simple alternative of investing in index funds which are fully collateralized by the underlying securities held by a custodian and voted by the sponsor. In other words, index funds do not suffer from a similar lack of voting rights.

Appendix A: ETF/Index Fund and Phantom Share Variable Construction

$$ETF\ Underlying\ Shares_j = \sum_i^n \frac{ETF\ TNA_i \times Underlying\ Share\ Percent\ TNA_{i,j}}{Underlying\ Share\ Price_j}, \quad (3)$$

$$Phantom\ Shares\ (SI)_j = \sum_i^n ETF\ Underlying\ Shares_{i,j} \times \frac{ETF\ Short\ Interest_i}{ETF\ Shares\ Outstanding_i}, \quad (4)$$

$$Index\ Fund\ Underlying\ Shares_j = \sum_i^n \frac{Index\ Fund\ TNA_i \times Underlying\ Share\ Percent\ TNA_{i,j}}{Underlying\ Share\ Price_j}, \quad (5)$$

where *i* is the ETF/Index Fund and *n* is the number of ETF/Index Funds in our sample, and *j* is each underlying stock that each ETF/Index Fund in our sample owns. Underlying Phantom Shares (TH) takes the value of 0, at the ETF level, if the ratio of 13F ETF Ownership to ETF Shares Outstanding is less than 1. TNA is the total net asset value.

Appendix B: Variable Definitions and Sources

Variable Name	Definition
Fundamental Data (Source: CRSP and Compustat)	
Six-Month Momentum	Return of the stock over the six months prior to the shareholder meeting.
Book to Market	Market value of equity / Book value of equity.
Assets	Total firm assets.
Return on Assets	Net income / Total assets.
Firm Age	Number of years since the IPO of the firm.
Blockholder Ownership	Percentage of shares outstanding owned by blockholders with 5% of more ownership in the stock, using 13F institutional ownership data.
Institutional Ownership	Percentage of shares outstanding owned by institutions, excluding ETFs, index funds, and blockholders.
Short-Sale Supply Ratio	Short Interest as a fraction of short sale supply, proxied by the level of institutional ownership.
ETF-Stock Return Correlation	The value weighted return correlation between the firm and all of the ETFs that own shares.
Voting Related Data (Source: ISS, OptionMetrics)	
Votes For	Total number of votes "for" the agenda item, as a percentage of possible votes.
Votes Against	Total number of votes "against" the agenda item, as a percentage of possible votes.
Broker Non-Votes	Total "broker non-votes" for the agenda item, as a percentage of possible votes.
Shareholder Sponsored	Takes the value of 1 for agenda items proposed by shareholders, 0 otherwise.
ISS Against	Takes the value of 1 for agenda items opposed by ISS, 0 otherwise.
Vote Premium	The value of the shareholder voting rights, defined using the measure from Kalay, Karakas and Pant (2014), from days (-5,0) around the record date for each firm annual meeting.
Merger and Governance Data (Source: SDC Platinum, ISS RiskMetrics Governance Data)	
E-Index	E-index developed by Bebchuk, Cohen, and Ferrell (2009)
Same Industry	Takes the value of 1 if the acquirer and target are in the same industry
Deal Value	Total deal value

Appendix C: Feedback to ESMA's Questionnaire on Empty Voting

European Securities and Market Authority (ESMA) conducted a "Call for Evidence on Empty Voting" on September 14th, 2011 (ESMA/2011/288). ESMA was fact-finding for possible rule-making and coincidentally asked institutional market participants the following question relevant to our paper:

- "*Internal policies relating to voting practices*
  Q5. What kind of internal policies, if any, do you have governing the exercise of voting rights in respect of securities held as collateral or as a hedge against positions with another counterparty?"

ESMA's "Feedback Statement" on "Call for Evidence on Empty Voting" on June 29th, 2012 (ESMA/2012/415) summarizes the responses to question #5 above as follows:

- "*Only 11 interested parties fully replied to this question, while a few respondents just declared they have no internal policy on the exercise of voting rights within their normal business activity. Five respondents asserted that the voting right attached to these securities is not exercised. Three contributors affirmed that they (or their members) recall (or encourage to act accordingly) any lent shares before the record date, especially when voting in contentious situations or for significant issues. Other replies more specifically stated that e.g. the voting rights cannot be exercised in order to benefit from trading book exemption; or they discouraged the borrowing of securities for the purposes of voting; or simply the rights remain assigned to the beneficial owner.*"

Some excerpts from the individual responses of the institutions to ESMA's question #5 above are below (sourced from ESMA's website, available upon request):

- **International Securities Lending Association (ISLA)**
  "*An ad hoc survey of lenders confirmed that lenders have not, nor ever would exercise any voting rights in respect of securities held as collateral. The majority of written governance policies are worded specifically to exclude the voting of collateral.*"

- **J.P. Morgan**
  "*J.P. Morgan adheres to industry standards and practices as referenced herein in relation to not facilitating the borrowing of securities for the purposes of voting. Through its Prime Brokerage business, it is able to prevent voting in respect of any borrowed securities that it lends to hedge fund clients, to the extent that they are retained on its Prime Brokerage books and records. J.P. Morgan also has strict vetting procedures around counterparties to which it is willing to lend securities within its Equity Finance business.*

continued on the next page

- **J.P. Morgan (continued)**
  In addition, the Worldwide Securities Services division of J.P. Morgan does not permit lending clients to vote on securities held as collateral in its securities lending programme. Furthermore, through our derivatives activity, clients are aware that no voting rights are passed through the contract and J.P. Morgan has a separate internal policy to abstain from voting in most instances of hedge trading positions, as they are temporary in nature."

- **BNP Paribas**
  "*With regard to the shares held for our own account in a trading book, the voting rights attached to the shares held as hedging of such positions cannot be exercised if it is intended to benefit trading book exemption. If the voting rights are exercised and consequently the exemption of trading book not applied, the Transparency declarations have to be provided in accordance with French law (threshold disclosures and, if applicable, disclosures on securities lending before general meeting).*

  With regard to the shares owned in collateral for client's transactions, the voting rights should not be used by the credit institution or investment firm."

- **Hermes Equity Ownership Services**
  "*Given our approach to see such activity as market abuse, it should not come as a surprise that we do not vote stock held as collateral or a hedge.*"

- **Aviva Investors**
  "*We do not vote these shares*"

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Table 1: ETF and Underlying Share Summary Statistics

In this table, we present the summary statistics for the ETFs, the underlying firm characteristics, and the ETF ownership in our sample, which is based on US public firms over 2004-2018. Panel A presents summary statistics for the ETFs. Observations are taken at the date ETFs report holdings. *Total Net Assets* is the total net assets of the fund taken from CRSP, in million US dollars. *Return* is the return of the ETF in the reporting month. *Expense Ratio* and *Turnover Ratio* are the expense and turnover ratios of the fund reported by CRSP, respectively. *Fund Age* is the number of years since the fund was introduced. *Net Flows* is the net flows into the ETF in the month that holdings were reported. Panel B reports summary statistics on the firms in our sample of company votes. Each observation here is an agenda item of a meeting. *Six-Month Momentum* is the return of the stock over the six months prior to the meeting. *Book to Market, Assets, and Return on Assets* are the book to market, assets in million and return on assets reported by Compustat, respectively. *Institutional Ownership, Index Mutual Fund Ownership,* and *Active Mutual Fund Ownership* are the percentage of shares outstanding owned by institutional investors, index mutual funds and active mutual funds, respectively. Panel C presents summary statistics for the institutional ownership, shares outstanding, and short interest of ETFs. *ETF Shares Outstanding (CRSP)* is the number of outstanding ETF shares reported by CRSP. *ETF Shares Outstanding (Bloomberg)* is the number of ETF shares outstanding reported by Bloomberg. *ETF Shares Ownership by Institutions* is the number of ETF shares held by institutions taken from Thomson 13F ownership data. *13F Ratio* is the ratio of shares owned by institutions to the number of shares outstanding of the ETF. The number of shares outstanding is taken from either CRSP or Bloomberg, depending on the accuracy of using each to calculate the implied number of shares the ETF holds in an underlying stock. *Short Interest Ratio* is the short interest ratio of the ETF taken from CRSP and reported on the same day as the holdings of the ETF.

Variables	Obs.	Mean	Std. Dev.	p1	p25	p50	p75	p99
Total Net Assets ($M)	76,089	1,752	8,737	1.663	30.73	147.2	718.4	27,285
Return (%)	77,493	0.728	5.011	-13.32	-1.156	0.747	3.007	14.48
Expense Ratio (%)	69,012	0.515	0.335	0.05	0.1	0.29	0.47	0.96
Turnover Ratio (%)	67,546	50.96	113.3	3	4	12	27	152
Fund Age (years)	74,785	6.636	5.002	0.0833	2.5	5.833	9.75	21
Net Flows (%)	71,642	2.928	15.9	-37.46	-1.3	0	3.909	100.2

Table 1: ETF and Underlying Share Summary Statistics (continued)

Panel B: Underlying Firm Summary Statistics

Variables	Obs.	Mean	Std. Dev.	p1	p25	p50	p75	p99
Six-Month Momentum (%)	44,859	10.48	38.85	-63.38	-7.971	7.184	23.68	133.1
Book to Market	43,452	0.627	0.637	0.033	0.292	0.503	0.791	2.789
Assets	44,948	11,139	81,078	13.92	300.7	1,044	3,733	161,385
Return on Assets (%)	44,901	-0.109	67.54	-26.75	-0.151	0.543	1.694	7.658
Firm Age (years)	44,952	22.41	16.34	3	10	18	30	66
Blockholder Ownership (%)	44,822	21.00	16.01	0.00	8.345	19.18	30.55	67.12
Institutional Ownership (%)	42,654	60.16	26.41	1.95	42.40	64.83	79.25	109.8
Active Mutual Fund Ownership (%)	43,680	15.37	10.86	0.00	6.228	14.61	22.83	43.11
Short Interest Available	42,539	8.449	9.918	0.126	2.563	5.245	10.33	59.26

Panel C: ETF Ownership Summary Statistics

Variables	Obs.	Mean	Std. Dev.	p1	p50	p75	p99
ETF Shares Outstanding (CRSP)	78,457	22,750,000	69,600,000	50,000	13,650,000	102,500,000	329,100,000
ETF Shares Outstanding (Bloomberg)	75,317	23,520,000	70,920,000	50,000	14,450,000	107,100,000	335,800,000
ETF Shares Outstanding (Morningstar)	68,659	24,320,000	72,240,000	50,001	15,370,000	111,500,000	334,400,000
Short Interest Ratio	73,335	0.057	0.296	0.000	0.025	0.240	0.903

Table 2: Phantom Shares and Voting Summary Statistics

In this table, we present the summary statistics for the Phantom Shares and voting measures that we use in our main regressions. *Votes For (Against) [Broker Non-Vote]* are the number of shares voted for, against or that were broker non-votes, as a percentage of shares outstanding for each agenda item in a company meeting, respectively. *ETF Underlying Shares* is the number of shares in the underlying firm that are held by all ETFs in our sample. *ETF Underlying Shares Voted For (Against)* is the number of underlying shares owned by ETFs that voted for (against) the agenda item, as a percentage of shares outstanding. *Phantom Shares (SI)* is the total number of phantom underlying shares implied by ETF short interest, as a percentage of shares outstanding. *Voting Premium* is the voting premium as defined by the measure introduced by Kalay, Karakaş and Pant (2014). The premium is taken as the median value from days *0* to *t–5* around the cum-date, which is three trading days prior to the record date for shareholder meeting (to allow for settlement of stock trades). All statistics below are reported as percent of potential votes, and in percentage figures.

Variables	Obs.	Mean	Std. Dev.	p1	p25	p50	p75	p99
Votes For ; *Stock-date-item observation unit*	328,205	74.97	142.7	8.94	67.46	79.42	86.84	97.88
Votes Against	328,263	4.981	9.815	0.00	0.532	1.544	4.387	54.41
Broker Non-Vote	327,543	6.998	9.632	0.00	0.00	3.654	10.81	42.53
ETF Underlying Shares	329,254	3.489	3.217	0.006	1.035	2.660	5.027	13.95
ETF Underlying Shares – Voted For	288,643	2.782	2.707	0.00	0.574	2.175	4.089	11.69
ETF Underlying Shares – Voted Against	288,643	0.078	0.473	0.00	0.00	0.00	0.00	2.419
IMF Underlying Shares	323,315	5.273	3.705	0.034	2.130	5.001	7.730	15.28
IMF Underlying Shares – Voted For	264,684	1.786	2.329	0.00	0.075	0.804	2.604	10.15
IMF Underlying Shares – Voted Against	264,684	0.072	0.470	0.00	0.00	0.00	0.00	2.226
Phantom Shares (SI); *Stock-date observation unit*	45,120	0.576	0.625	2.3e-05	0.092	0.438	0.851	2.629
Voting Premium (Median in % – [5,0] days of cum-date)	10,755	0.138	1.063	-1.507	-0.054	0.037	0.165	3.276
Voting Premium (Median in % – [5,5] days of cum-date)	10,796	0.132	1.045	-1.440	-0.042	0.033	0.146	3.087

Table 3: Phantom Shares and Votes Cast

In this table, we examine the effect of Phantom Shares on voting in company meetings. The dependent variable is the number of shares voted for the agenda item in Columns 1 and 4, the number of shares voted against in Columns 2 and 5, and the number of broker non-votes in Columns 3 and 6, all as a percentage of shares outstanding. *Phantom Shares (SI)* is defined as the total number of phantom shares of the underlying securities of ETFs, using short interest as a percentage of shares outstanding. *Institutional Ownership (TH)* is a dummy variable that takes the value of one if the number of shares based on ownership in Thomson, is greater than the shares outstanding of the firm. *Shares Voted For (Against) by ETFs [Index Mutual Fund]* is the percentage of shares outstanding that were held by ETFs [Index Mutual Funds] and voted for (against) the item. *ETF [Index Mutual Funds] Underlying Shares* is the total number of shares held by ETFs [Index Mutual Funds]. All control variables are defined in Appendix Table B. We exclude director elections, ratification of auditors, and any agenda item that has a pass requirement of 1%. All models include firm fixed effects. Standard errors clustered by firm and meeting are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)
Dependent Variable	For	Against	Broker Non-Vote
Phantom Shares	-0.753***	-0.317***	0.505***
	(0.177)	(0.091)	(0.124)
ETF Underlying Sh. – Voted For	1.004***		
	(0.072)		
IMF Underlying Sh. – Voted For	0.527***		
	(0.046)		
ETF Underlying Sh. – Voted Against		2.833***	
		(0.138)	
IMF Underlying Sh. – Voted Against		1.467***	
		(0.081)	
ETF Underlying Shares			-0.111***
			(0.036)
IMF Underlying Shares			0.014
			(0.039)
Shareholder Sponsored	-0.380***	0.305***	0.020***
	(0.005)	(0.006)	(0.002)
ISS Against	-0.181***	0.155***	0.003***
	(0.003)	(0.002)	(0.001)
Log (Assets)	0.006**	0.004**	-0.003
	(0.003)	(0.002)	(0.002)
Firm Age	-0.004***	-0.003***	0.003***
	(0.000)	(0.000)	(0.000)
Institutional Ownership	0.087***	0.049***	-0.057***
	(0.011)	(0.006)	(0.008)
Six-Month Momentum	0.002	-0.006***	-0.003
	(0.004)	(0.002)	(0.002)
Book to Market	-0.015***	0.002*	0.003*
	(0.005)	(0.001)	(0.002)
Return on Assets	0.045	-0.017	0.061***
	(0.037)	(0.013)	(0.022)
Short-Sale Supply	-0.150***	-0.038***	0.074***
	(0.020)	(0.011)	(0.017)
Constant	0.702***	0.082***	0.069***
	(0.020)	(0.011)	(0.015)
Observations	41,210	41,262	49,568
R-squared	0.821	0.846	0.552
Firm FE	Yes	Yes	Yes

Table 4: Broker Non-Votes Around SEC Rule Changes

In this table, we examine the effect of Phantom Shares on the number of broker non-votes around an SEC ruling that made brokers ineligible to vote in director elections starting in 2010 and additional items in 2012. For this test, we include only the agenda items that are director elections in Columns 1 to 3 and only those items affected by the 2012 rule change in Columns 4 to 6. We split the Phantom Shares measure using the Post 2010 dummy. Phantom Shares Pre 2010 (Post 2010) replicate the Phantom Shares variable in Table 2, but take the value of zero for years after 2010 (before 2010). The same is done using 2012 as the cutoff in Colums 4 to 6. Firm controls include ETF ownership, index mutual fund ownership, active mutual fund ownership, log of assets, firm age, institutional ownership, blockholder ownership, book to market and return on assets, and are defined at the Appendix Table B. All models include firm fixed effects. Standard errors clustered by firm and meeting are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Dependent Variable	(1) For	(2) Against	(3) Broker Non-Vote	(4) For	(5) Against	(6) Broker Non-Vote
	Director Elections (2008-2011)			*2012 Rule Change items*		
Phantom Shares – Pre 2010	-1.503***	0.390	0.024			
	(0.504)	(0.274)	(0.273)			
Phantom Shares – Post 2010	-2.118***	0.332*	0.394**			
	(0.353)	(0.192)	(0.187)			
Phantom Shares – Pre 2012				0.605	-1.780**	-0.337
				(0.864)	(0.759)	(0.630)
Phantom Shares – Post 2012				-1.629	-0.879	1.487**
				(1.029)	(0.607)	(0.657)
ETF Underlying Sh. – Voted For	2.036***			0.791***		
	(0.183)			(0.259)		
IMF Underlying Sh. – Voted For	1.273***			-0.105		
	(0.133)			(0.224)		
ETF Underlying Sh. – Voted Against		3.534***			2.949***	
		(0.330)			(0.413)	
IMF Underlying Sh. – Voted Against		-0.727			0.429	
		(0.650)			(0.567)	
ETF Underlying Shares			-0.004			-0.018
			(0.096)			(0.106)
IMF Underlying Shares			-0.083			-0.067
			(0.078)			(0.106)
Post 2010	-0.073***	-0.014***	0.078***			
	(0.006)	(0.004)	(0.003)			
Post 2012				-0.015	-0.030***	0.036***
				(0.010)	(0.009)	(0.006)
Constant	1.118***	0.030	-0.096**	0.830***	-0.011	0.054***
	(0.088)	(0.040)	(0.042)	(0.025)	(0.019)	(0.017)
Observations	39,368	39,382	52,567	1,501	1,502	1,661
R-squared	0.722	0.416	0.737	0.800	0.791	0.381
Firm FE	Yes	Yes	Yes	No	No	No
Industry FE	No	No	No	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Table 5: Phantom Shares and Proposal Pass Rate

In this table, we examine the effect of phantom shares on the pass rate of important votes in a panel logit specification. The dependent variable in each column is a dummy variable that takes the value of one if the vote passed and the coefficients are given as odds ratios. *Underlying Phantom Shares Voted For (Against)* is calculated by first multiplying the number of underlying phantom shares by an indicator variable of whether or not the Shares Voted For (Against) by ETFs the proposal in their actual underlying shares. This is then aggregated across all ETFs that voted for (against) the proposal and divided by the number of shares outstanding of the firm. *Total Phantom Shares* is calculated the same as in Table 3. We standardize all independent variables so that each coefficient reported in the table represents the odds ratio for a one standard deviation increase. Columns 1 is shareholder proposals. Columns 2 and 4 are close votes within 5%. Column 3 is items affected by the 2012 rule change on broker voting. *Shares Outstanding Base* is a dummy variable that takes the value of one if the voting base of the meeting item is shares outstanding, zero otherwise. Columns 1 to 3 exclude any item where the base is shares outstanding. All other controls are the same as in Table 3. Standard errors clustered by firm are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Dependent Variable	(1) Pass *Shareholder Proposal*	(2) Pass Close Vote	(3) Pass 2012 Rule Change Items	(4) Pass Close Vote
Phantom Shares – Voted For	0.636*** (0.064)	0.424* (0.188)	1.017 (0.182)	
Phantom Shares – Voted Against	1.048** (0.027)	1.029 (0.085)	0.980 (0.091)	
Phantom Shares – Voted For * Post 2012			0.682* (0.144)	
Phantom Shares – Voted Against * Post 2012			1.039 (0.128)	
Post 2012			1.235 (0.284)	
Total Phantom Shares				0.845 (0.248)
Shares Outstanding Base				1.168 (2.030)
Shares Outstanding Base * Phantom Shares				0.053** (0.197)
ETF Underlying Sh. – Voted For	6.881*** (0.905)	4.762** (3.669)	1.384** (0.200)	1.740 (0.970)
ETF Underlying Sh. – Voted Against	0.677*** (0.018)	0.794 (0.113)	0..776*** (0.039)	0.876 (0.098)
IMF Underlying Sh. – Voted For	1.039** (0.108)	2.120 (1.848)	0.830 (0.115)	3.398*** (2.318)
IMF Underlying Sh. – Voted Against	0.997*** (0.026)	0.907 (0.093)	1.002 (0.055)	0.906*** (0.085)
Observations	6,433	887	1,204	916
Controls	Yes	Yes	Yes	Yes

Table 6: Phantom Shares and Voting Premium

In this table, we examine the effect that phantom shares have on the voting premium around critical votes. The dependent variable in each column is the vote premium using the measure created by Kalay, Karakaş and Pant. (2014). We use the median value of the vote premium around a window of [-5,0] days around the cum-date, which is five trading days prior to the record date for shareholder meeting (to allow for settlement of stock trades). In Columns 3 and 4 we use the median value of the vote premium around a [-5,5] window. *Special Meeting* is a dummy variable that takes the value of one for special meetings. *Critical Item* is a dummy variable that takes the value of one if at least one item on the meeting agenda meets the following criteria, and zero otherwise: (i) an annual meeting and the vote difference was less than 10%, (ii) an annual meeting/special item, (iii) a proxy contest, or (iv) ISS recommended voting against the item. Columns 2 and 4 exclude special meetings. Firm controls include index mutual fund ownership, active mutual fund ownership, log of assets, firm age, institutional ownership, blockholder ownership, book to market and return on assets, and are defined at the Appendix Table B. All models include firm fixed effects. Standard errors clustered by firm and meeting are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Dependent Variable	(1) Voting Premium	(2) Voting Premium	(3) Voting Premium	(4) Voting Premium
	(-5,0)		*(-5,5)*	
Phantom Shares	-0.059*	-0.090***	-0.056	-0.081***
	(0.034)	(0.032)	(0.034)	(0.031)
Special Meeting	-0.001		0.000	
	(0.001)		(0.001)	
Special Meeting × Phantom Shares	0.266*		0.168*	
	(0.138)		(0.100)	
Log (1 + Critical Items)		-0.001***		-0.000**
		(0.000)		(0.000)
Log (1 + Critical Items) × Phantom Shares		0.066*		0.062*
		(0.037)		(0.037)
Constant	0.004	0.005	0.004	0.005
	(0.003)	(0.003)	(0.003)	(0.003)
Observations	9,653	9,368	9,676	9,391
R-squared	0.324	0.331	0.325	0.336
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes

Table 7: Predicting Critical Votes

In this table, we test the possibility that our measures of Phantom Shares could cause critical votes. Phantom Shares measure is created using short interest in Columns 1 and 2. *Special Meeting* is a dummy variable that takes the value of one for special meetings. *Critical Item* is a dummy variable that takes the value of one if at least one item on the meeting agenda meets the following criteria, and zero otherwise: (i) an annual meeting and the vote difference was less than 10%, (ii) an annual meeting/special item, (iii) a special meeting, (iv) a proxy contest, or (v) ISS recommended voting against the item. Firm controls include index mutual fund ownership, active mutual fund ownership, log of assets, firm age, institutional ownership, blockholder ownership, book to market and return on assets, and are defined at the Appendix Table B. Column 1 is a logit model where the depended variable is the special meeting dummy. Column 2 is a panel regression where the dependent variable is the log of one plus the number of critical items. All models include firm fixed effects. Standard errors clustered by firm and meeting are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)
Dependent Variable	Special Meeting	Log (1 + Critical Items)
Phantom Shares	1.034	-.763
	(0.583)	1.226
Constant	0.017***	-0.249***
	(0.007)	(0.183)
Observations	9,934	9,391
R-squared	0.028	0.504
Firm FE	No	Yes
Controls	Yes	Yes

Table 8: Phantom Shares and Collateral

In this table, we examine the effect that underlying shares likely to be held in collateral on the relationship between phantom shares and broker non-votes. In all columns the dependent variable is the number of broker non-votes. *Phantom Shares* are defined as the total number of phantom shares of the underlying securities of ETFs, using short interest or Thomson ownership. Both are a percentage of shares outstanding. *ETF Underlying Shares* is the total number of underlying shares held by ETFs. *ETF-Stock Return Correlation* is the rank between 0 and 100 of the value (equal) weighted return correlation between the stock and at all of the ETFs that hold it. Columns 1 and 2 use the rank, and Columns 3 and 4 sort firms into deciles based on the rank. All control variables are defined in Appendix Table B. In this table, we exclude director elections and any agenda item that has a pass requirement of 1%. All models include firm fixed effects. Standard errors clustered by firm and meeting are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Dependent Variable	(1) Broker Non-Vote	(2) Broker Non-Vote	(3) Broker Non-Vote	(4) Broker Non-Vote
	Rank		*Decile*	
Phantom Shares	0.276	0.255	0.240	0.217
	(0.170)	(0.172)	(0.181)	(0.179)
ETF Underlying Shares	-0.116***	-0.103**	-0.115**	-0.104**
	(0.044)	(0.046)	(0.046)	(0.047)
ETF-Stock Return Correlation (vw)	0.000		0.000	
	(0.000)		(0.000)	
ETF-Stock Return Correlation (vw) × Phantom Shares	0.005*		0.050*	
	(0.003)		(0.028)	
ETF-Stock Return Correlation (vw) × ETF Underlying Shares	0.000		0.002	
	(0.001)		(0.006)	
ETF-Stock Return Correlation (ew)		0.000		0.000
		(0.000)		(0.000)
ETF-Stock Return Correlation (ew) × Phantom Shares		0.006*		0.055*
		(0.003)		(0.029)
ETF-Stock Return Correlation (ew) × ETF Underlying Shares		-0.000		-0.001
		(0.001)		(0.006)
Constant	0.078***	0.077***	0.079***	0.077***
	(0.014)	(0.014)	(0.014)	(0.014)
Observations	46,728	46,728	46,728	46,728
R-squared	0.559	0.559	0.559	0.559
Firm FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes

Table 9: Directional vs. Operational ETF Shorting

In this table we examine the relationship between directional shorting and operational shorting of ETFs, underlying phantom shares, and broker non-votes. In all columns the dependent variable is broker non-votes. *Phantom Shares – Directional* is the number of phantom shares calculated using share lending data from Markit. *Phantom Shares – Operational* is the difference between the *Phantom Shares – Directional* variable and our main *Phantom Shares* variable. All control variables are defined the same as in Appendix Table B. In this table, we exclude director elections and any agenda item that has a pass requirement of 1%. All models include firm fixed effects. Standard errors clustered by firm and meeting are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

Dependent Variable	(1) Broker Non-Vote	(2) Broker Non-Vote	(3) Broker Non-Vote
Phantom Shares – Operational	0.856***		0.924***
	(0.166)		(0.175)
Phantom Shares – Directional		0.227	-0.291
		(0.244)	(0.229)
ETF Underlying Shares	-0.124***	-0.085**	-0.125***
	(0.036)	(0.036)	(0.036)
IMF Underlying Shares	0.005	0.036	0.005
	(0.040)	(0.039)	(0.040)
Constant	0.069***	0.072***	0.069***
	(0.015)	(0.015)	(0.015)
Observations	49,568	49,568	49,568
R-squared	0.552	0.551	0.552
Firm FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes

Table 10: Phantom Shares and Acquirer Returns

In this table, we examine possible effects of phantom shares on the announcement returns for acquiring firms. In each column, the dependent variable is a 4-factor alpha (Fama-French 3 factor plus momentum) obtained from a daily regression from days *t–10* to *t+1* or *t–1* to *t+1*. In Panel B, *Above 20* is a dummy variable that takes the value of 1 of the firm intends to issue more than 20% of their shares. In Columns 1,2,4,5 observations are weighted by their distance from the 20% cutoff. Columns 1 (4) use a full sample of stock only mergers, Columns 2 and 5 include stock only mergers that intended to issue between 5-35% of shares. Columns 3 and 6 include stock only mergers that intended to issue between 10-30% of shares. Columns 1 to 3 include only public targets, and Columns 4 to 6 include all targets. All columns include acquiring firm SIC3 industry fixed effects and year fixed effects. Robust standard errors clustered by firm are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively. While a constant is included in the regression, the coefficient is omitted for brevity.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable: 4-Factor Alpha	[–10,+10]	[–1,+1]	[–10,+10]	[–1,+1]	[–10,+10]	[–1,+1]
Phantom Shares	0.003	-0.002	0.011	0.003	0.007	0.003
	(0.006)	(0.004)	(0.009)	(0.006)	(0.007)	(0.004)
Stock Only			-0.003	0.000	-0.008*	-0.004
			(0.007)	(0.005)	(0.005)	(0.003)
Stock Only × Phantom Shares			-0.010**	-0.007*	0.002	-0.002
			(0.005)	(0.004)	(0.004)	(0.002)
E-Index	-0.000	-0.003			0.007	-0.003
	(0.009)	(0.006)			(0.010)	(0.006)
E-Index × Phantom Shares	-0.015**	-0.002			-0.008	-0.002
	(0.006)	(0.004)			(0.007)	(0.004)
Stock Only × E-Index					0.015*	0.009*
					(0.008)	(0.005)
Stock Only × E-Index × Phantom Shares					-0.019**	-0.011**
					(0.007)	(0.004)
ETF Underlying Shares	-0.003	-0.001	-0.013	0.002	-0.001	0.001
	(0.005)	(0.003)	(0.009)	(0.006)	(0.006)	(0.004)
IMF Underlying Shares	-0.004	-0.003	-0.019	-0.033***	-0.019	-0.019**
	(0.004)	(0.003)	(0.012)	(0.009)	(0.015)	(0.009)
Log (Deal Value)	-0.009*	-0.008***	-0.006	-0.012	-0.010**	-0.009***
	(0.005)	(0.003)	(0.014)	(0.010)	(0.005)	(0.003)
Same Industry Dummy	0.003	0.002	0.007	0.004	-0.001	-0.002
	(0.003)	(0.002)	(0.010)	(0.006)	(0.004)	(0.002)
Return on Assets	0.000	-0.003	-0.083	-0.091	-0.006	-0.003
	(0.015)	(0.009)	(0.124)	(0.095)	(0.019)	(0.009)
Book to Market	0.012	0.000	0.005	-0.017	-0.010	-0.010**
	(0.011)	(0.006)	(0.019)	(0.012)	(0.011)	(0.004)
Firm Age	-0.002	0.004*	0.000	0.009	-0.004	0.003
	(0.004)	(0.002)	(0.015)	(0.010)	(0.004)	(0.002)
Institutional Ownership	0.009	0.003	-0.049***	-0.008	-0.005	-0.002
	(0.007)	(0.004)	(0.015)	(0.012)	(0.009)	(0.005)
Short-Interest Supply	-0.001	0.001	0.001	-0.002	-0.004	-0.000
	(0.004)	(0.002)	(0.007)	(0.004)	(0.005)	(0.002)
Observations	1,221	1,221	112	112	868	868

R-squared	0.151	0.180	0.535	0.492	0.185	0.314
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: 20% Share Issuance

VARIABLES	(1) Full Weighted	(2) 5%-35% Weighted	(3) 10%-30%	(4) Full Weighted	(5) 5%-35% Weighted	(6) 10%-30%
Phantom Shares	0.006	0.015	0.018	0.002	0.002	0.013
	(0.011)	(0.014)	(0.016)	(0.013)	(0.020)	(0.012)
Above20	0.026	0.000	-0.003	0.038*	0.030	0.022
	(0.017)	(0.018)	(0.027)	(0.020)	(0.021)	(0.022)
Phantom Shares * Above20	-0.029**	-0.030*	-0.026	-0.034**	-0.055**	-0.040*
	(0.011)	(0.014)	(0.022)	(0.016)	(0.024)	(0.021)
Observations	120	55	37	178	79	54
R-squared	0.587	0.768	0.834	0.464	0.573	0.669
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Figure 1: Voting Implications of Stock, Mutual Fund and ETF Ownership

What are the voting implications of investing $1 into: (i) a common stock, (ii) a mutual fund, and (iii) an ETF?

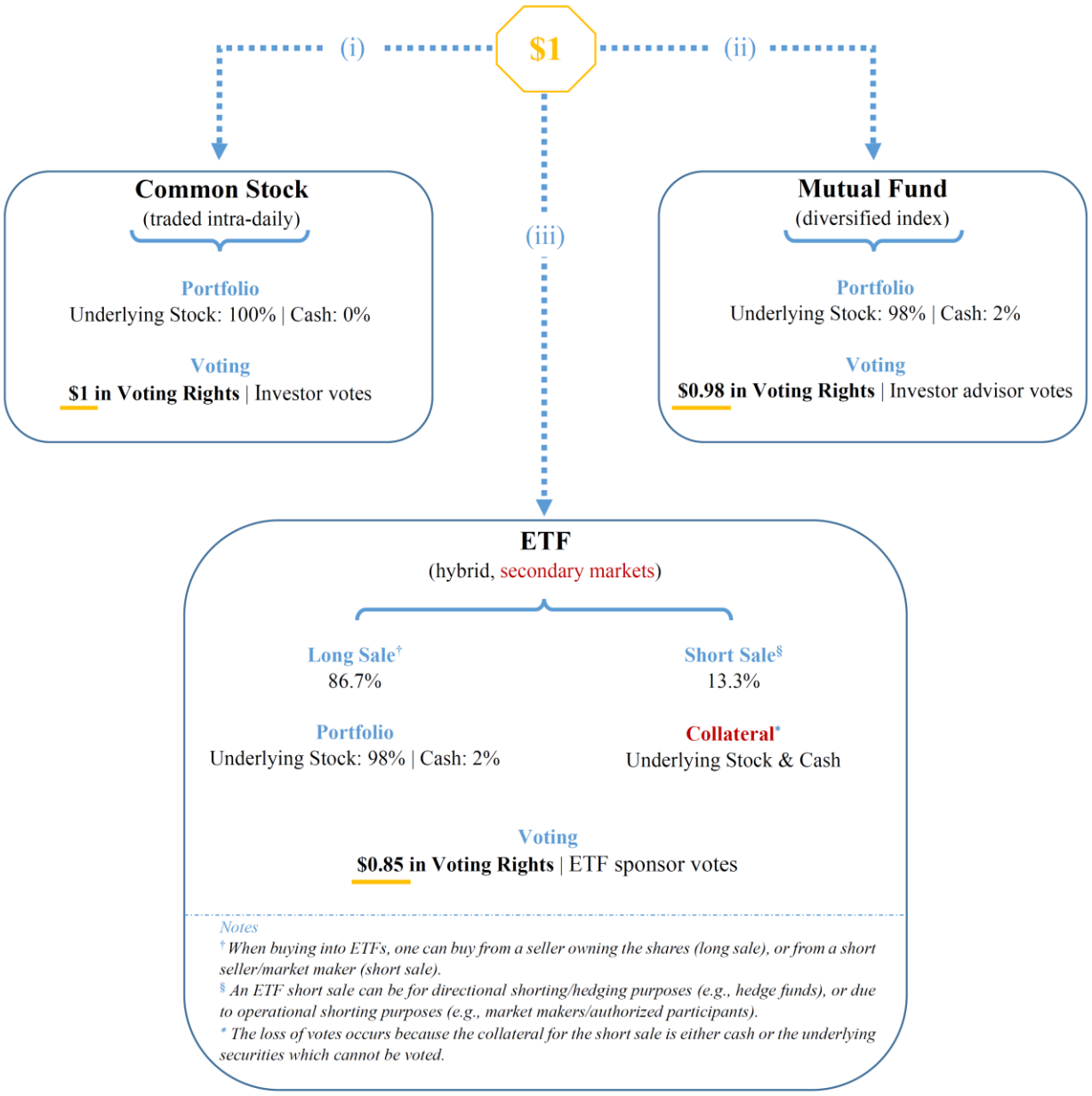

Figure 2: The Relationship Between a Regular ETF Share and the Underlying Securities

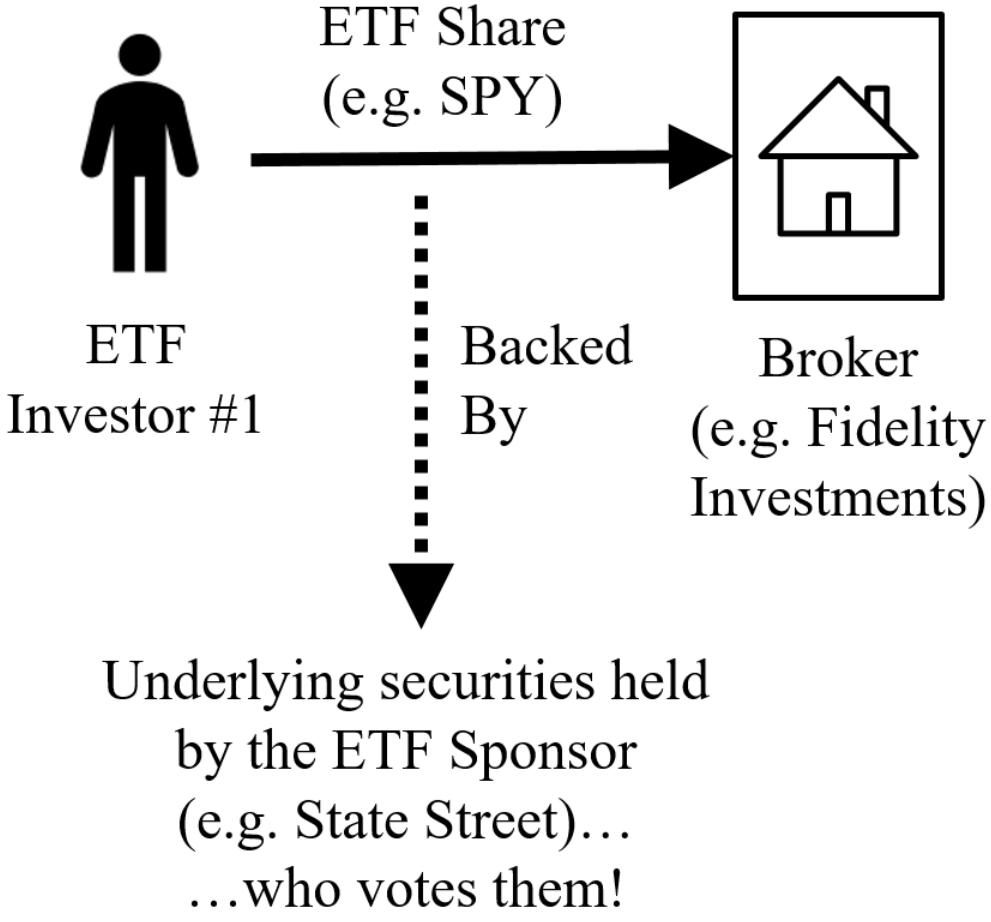

Figure 3: The Relationship Between a Phantom ETF Share and the Underlying Securities

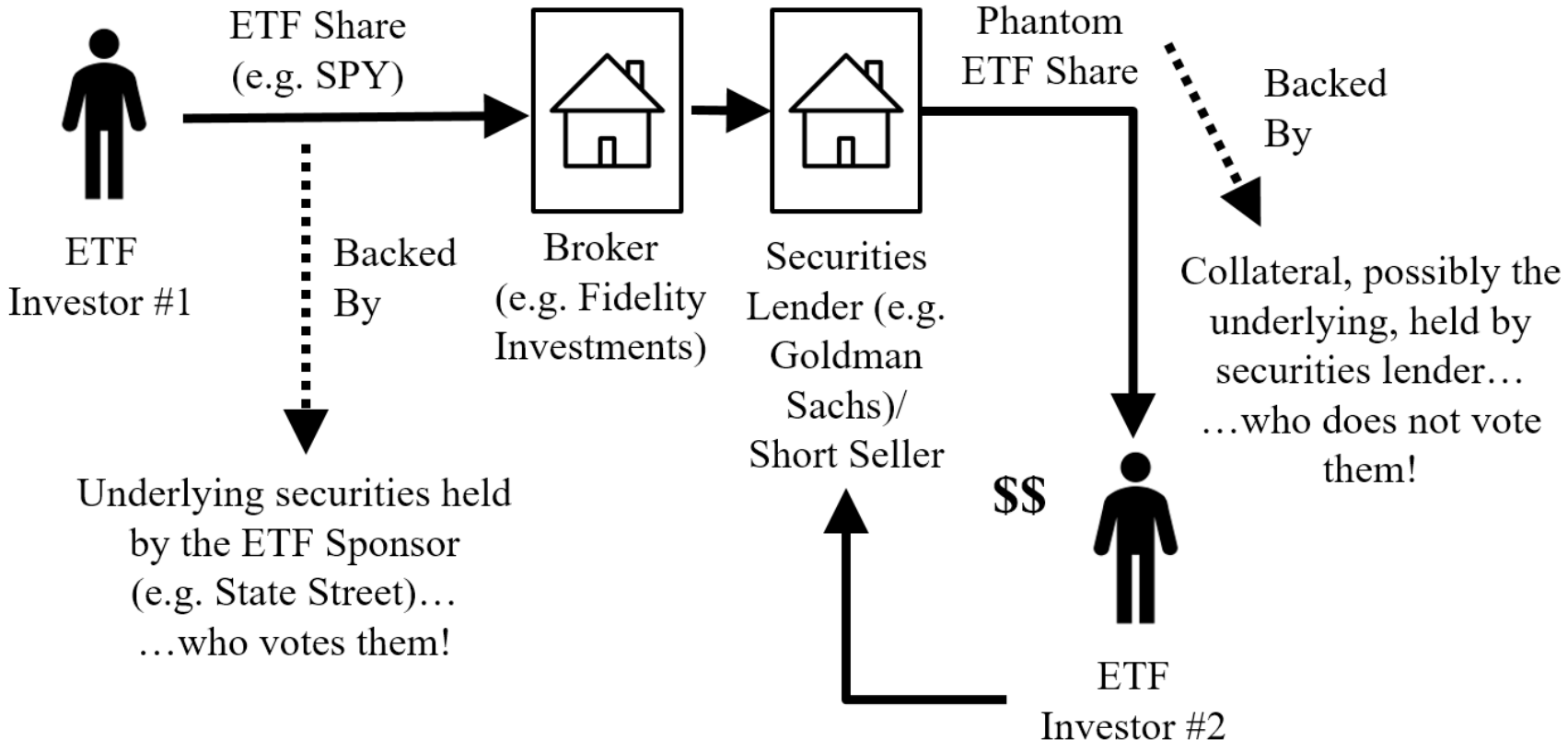

Table A1: Phantom Shares and Votes Cast

In this table, we repeat the test from Table 3, but use alternate denominators for the dependent variables. Each row of the table represents a separate regression. In row (1) we divide votes for, against, and broker non-votes by the voting base taken from ISS. In row (2) we divide votes for, against, and broker non-votes by the total of votes for + votes against. In row (3) we divide votes for, against, and broker non-votes by the **votes** outstanding from ISS and exclude dual class firms. In row (4) we divide votes for, against, and broker non-votes by the **shares** outstanding from ISS and exclude dual class firms. Standard errors clustered by firm and meeting are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

VARIABLES	(1) For	(2) Against	(3) Broker Non Vote
(1) Phantom Shares – Vote Base	-0.936***	-0.384***	1.005***
	(0.158)	(0.116)	(0.209)
(2) Phantom Shares – For + Against	-1.062***	-0.389***	1.046***
	(0.145)	(0.117)	(0.206)
(3) Phantom Shares – Votes Outstanding	-0.799***	-0.356***	0.569***
	(0.185)	(0.094)	(0.122)
(4) Phantom Shares – Shares Outstanding	-0.789***	-0.379***	0.590***
	(0.177)	(0.097)	(0.129)
Firm FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes

Table A2: Broker Non-Votes Surrounding SEC Rule Changes

In this table, we repeat the examination from Table 4 and broker non-votes around an SEC ruling that made brokers ineligible to vote in director elections starting in 2010 and additional items in 2012. For this test, we use the same specifications, but alter the denominator of the dependent variables. In Columns 1 – 4 we repeat the director elections test, and Columns 5 to 8 repeat the test around the 2012 rule change. In each column the dependent variable is Broker Non-Votes divided my different share denominators. In Columns 1(5) *Vote Base* is the voting base taken from ISS. In Columns 2(6) broker non-votes is scaled by the total of votes for + votes against. In Columns 3(7) broker non-votes is scaled by s by the **votes** outstanding from ISS and exclude dual class firms. In Columns 4(8) broker non-votes is scaled by the **shares** outstanding from CRSP and exclude dual class firms. Standard errors clustered by firm and meeting are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

	Director Elections (2008-2011)				*2012 Rule Change*			
VARIABLES	(1) Vote Base	(2) For + Against	(3) Votes Outstanding	(4) Shares Outstanding	(5) Vote Base	(6) For + Against	(7) Votes Outstanding	(8) Shares Outstanding
	Broker Non-Votes							
Phantom Shares - Pre	0.230	0.229	-0.041	0.154	-1.149	-0.760	-0.373	-0.252
	(0.526)	(0.526)	(0.285)	(0.302)	(0.852)	(1.153)	(0.630)	(0.655)
Phantom Shares - Post	0.934***	0.930***	0.342*	0.379*	2.518	3.132**	1.478**	1.811**
	(0.359)	(0.359)	(0.190)	(0.205)	(1.806)	(1.419)	(0.699)	(0.746)
Post	0.116***	0.116***	0.081***	0.086***	0.029**	0.045***	0.035***	0.035***
	(0.007)	(0.007)	(0.004)	(0.004)	(0.013)	(0.011)	(0.006)	(0.006)
Firm FE	Yes	Yes	Yes	Yes	No	No	No	No
Industry FE	No	No	No	No	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes