Phantom of the Opera: ETFs and Shareholder Voting*

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Phantom of the Opera: ETFs and Shareholder Voting

Abstract

Short-selling and liquidity provision in Exchange-Traded Funds creates ETF shares with cash flows rights but no associated voting rights. These "phantom shares" trade at ETF market prices, but, because they are not backed by the underlying basket of securities held by the ETF sponsor's custodian they are not voted by the sponsor, removing any associated voting rights. We introduce a novel measure of phantom shares, and show that in proxy voting of the underlying stocks of the ETF, it is associated with an increase in broker non-votes and a corresponding decrease in both votes for and against. We also find that increases in our measure of phantom shares reflecting a decrease in the total outstanding shares to be voted, is associated with an increase in the vote premium during shareholder meetings with close votes, proxy contests, special meeting items, or if ISS recommended voting against the item.

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

JEL Codes: G1, G12, G14, G23, G34

Introduction

With the dramatic increase in passively invested assets across the globe,[1] index funds and ETFs play an increasingly important role in corporate governance. In contrast to active managers, for whom exit is a governance strategy, passive investors must rely on voice – voting and activism – 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 (e.g., Edmans, Levit and Reilly (2018)) and the institutional attention associated with passive ownership may enhance governance in the firm (e.g., Appel, Gormley and Keim (2016)). 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, management supporting approach to governance (e.g., Bubb and Catan (2018), Bebchuk, Cohen and Hirst (2017), Lund (2018), and Strampelli (2018)).

While the debate regarding the efficacy of active versus passive voting decisions still rages, our paper focuses on a more foundational issue: the disassociation of economic ownership and voting rights in exchange-traded funds (ETFs).[3] Our concern is not how effectively ETFs sponsors vote their shares, but rather that not all ETF shares have corresponding voting rights. This disassociation of economic ownership and voting rights is a result of two unique aspects of the security design of ETFs: short-selling and liquidity provision by authorized participants (APs). The first aspect, the ability to short-sell ETFs, has been widely embraced by the markets. At the end of 2016, for example, ETFs constituted less than 10% of the US equity market capitalization,

[1] As of June 30th, 2018, passive assets have risen to over $13 trillion - Trilbe, Wynne, Pensions & Investments, "Passive investing continues to captivate global audience", 10/15/2018.
[2] See Hirschman (1970) for a detailed discussion of the 'exit' and 'voice' responses.
[3] See Hu and Black (2006) for a discussion of decoupling the economic ownership of shares from voting rights through derivatives revolution and other capital market developments.

but they accounted for over 20% of value-weighted short-interest (Evans, Moussawi, Pagano and Sedunov (2018)). While the ability to short-sell ETFs may be a useful investment tool for retail and institutional investors, whenever an ETF share is borrowed from one investor and then sold short to another, it creates economic ownership for two shares, but with voting rights remaining the same and just for one share. Only the original ETF share is backed by shares of the underlying basket of securities (e.g. the S&P 500 portfolio for the SPY ETF), held by a third party custodian and voted by the ETF sponsor.

The second aspect of ETF security design that disassociates voting rights from economic ownership is AP liquidity provision. 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 institutional investors that are APs. APs are authorized to arbitrage the difference in prices between the basket of underlying securities (e.g., 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, however, Evans et al. (2018) document that APs are allowed to sell ETF shares that have not yet been created and therefore are not backed by shares of the underlying securities. Similar to the short-selling case, these shares could be bought and sold at ETF prices granting investors economic ownership, but because the AP has not purchased and delivered the basket of underlying securities to the sponsor, these shares do not have corresponding voting rights exercised by the ETF sponsor.

In this paper, we refer to the ETF shares with economic but not voting rights as "phantom shares". To illustrate how we measure phantom shares, we explore a specific example of the SPDR S&P Retail ETF, XRT and the June 3rd, 2011 proxy vote associated with one of the holdings of this ETF, Netflix. Using Bloomberg data, we find that the number of XRT shares that have been

created (i.e., the underlying basket of securities is being held by a third-party custodian on behalf of the ETF sponsor, State Street Global Advisors) as of May 31st, 2011 is 19,800,000. These ETF shares all have both economic ownership and associated voting rights. We then use the 13f data from the most recent quarter end and the bi-weekly short-interest data to estimate the total number of shares with economic ownership. The 13f data, which underestimate the total shares because only a subset of investors is required to file, show institutional ownership of 123,000,000 XRT shares. Similarly, the short-interest data which are reported at a greater frequency, indicate investor ownership of 165,842,820 shares. Through either operational shorting or repeated lending and short-selling of the same XRT shares, 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 held by investors have associated voting rights.

For a small subset of our data, the actual shares of underlying security voted by the ETF are disclosed in the SEC form N-PX filing. To lend credence to our claim above, we can compare the actual number of shares voted to the number of shares with economic ownership for a given underlying security. Translating the 13f and short interest estimates of investor ETF ownership into underlying Netflix shares (1.29% of the XRT ETF assets were held in Netflix as of May 31st, 2011), the number of Netflix shares would be 338,909 and 456,956 respectively. However, the actual number of Netflix shares XRT reports voting on is 38,216. In line with the estimates above, only approximately 10% of investors' XRT Netflix ownership has actually been voted. To estimate the number of phantom shares of a given underlying security, we simply take the difference between the number of underlying security shares implied by the 13f or short interest estimates and the number of shares implied by the shares outstanding.

With our measure of phantom ownership of the underlying securities in hand, we turn to actual voting outcomes to see how it relates. Consistent with our notion that ETF phantom shares translated to phantom shares of the underlying that are not voted, we find that as phantom shares just before the voting record date increase, both votes for and against any measure on the proxy voting ballot decrease. At the same time, broker non-votes for any measure on the proxy voting ballot increase as phantom shares increase as well. To ensure this is not simply picking up a dual trend in ETF voting and voting patterns over time, we repeat the exercise with just director election votes. Before 2010, the SEC allowed brokers to vote share even "without voting instructions from the beneficial owner". This rule changed formally on January 1st, 2010, so that brokers would not be able to vote without instructions from the investors. We therefore repeat our analysis on director elections accounting for the change in policy and 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 a strong negative relationship between phantom shares and broker non-votes, suggesting that brokers widely voted such shares in director elections.

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 premiums) 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. We find that voting premiums increase with the phantom shares, around the record date for shareholder meetings, particularly for meetings that are contentious. Analyzing whether phantom shares do 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 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 around the contentious shareholder meetings.

Our paper contributes to the literatures on corporate control and governance by introducing a novel measure of phantom ETF shares which have economic exposure but no voting rights. We also show that separate from index funds an 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. Given the dramatic increase in ETF assets world-wide, this is an important difference relative to other passive vehicles that should give investors, managers and regulators pause. This study also contributes to the ETF pricing literature by highlighting the important of the value of voting rights in the underlying shares, which have not been examined by the literature previously, but are priced as our evidence suggests.

The rest of the paper proceeds as follows. Section 1 describes our approach to estimating ETF and underlying security phantom shares, and the data used to construct these measures. Section 2 looks at the vote outcome regressions. Section 3 examines the pricing implications of phantom shares, and Section 4 concludes.

1. ETFs and Phantom Shares

1.1. ETF and Vote Data

We use N-PX data compiled by Institutional Shareholder Services (ISS) as the source of our ETF voting record information. Beginning in 2004, SEC Form N-PX requires 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 and having August 31 as the N-PX filing deadline for all investment companies.[4] The filing requires detailed disclosures on the policies and procedures used to guide proxy vote decisions for each security in each portfolio, typically reported in the Statement of Additional Information (SAI), along with the proxy voting record for each security in each mutual fund portfolio in the investment company registrant which are contains in N-PX filings.[5] The disclosure is at the fund level and for each security the fund owns. It includes a brief identification of the matter voted on, information about whether the matter was proposed by the management or a shareholder, whether the fund cast its vote, how it cast its vote (for example, for or against the proposal, or abstain; for or withhold regarding election of directors), and specifically whether the fund cast its vote for or against management.

We use CRSP Mutual Fund Database to extract ETF holdings data. In order to map the ISS N-PX data on WRDS with our mutual fund 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,

[4] 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

[5] For example, many State Street ETFs (SPDRs) report their voting records under the SPDR Series Trust (CIK: 0001064642) registrant. See, for example, the individual vote records on each security held by 80+ SPDR ETFs in the twelve 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

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. As a result, we were able to have 5,928,246 voting records on 5,128 different US companies and 1,451 ETFs.[6]

We then merge the N-PX vote data with the company vote results dataset which is also compiled by ISS. This data provides information on the vote results that are 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. The vote results include the total votes for, against, abstain, and the vote outcome along with the ISS recommendation. The vote outcome is typically 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. On the contrary, if the support rate is lower, "Fail" is recorded. "Not Disclosed" is recorded for those that vote outcomes are not disclosed. "Withdraw" is recorded for those being withdrawn eventually. "Pending" is recorded for those that vote outcomes are currently pending. The dataset includes vote requirement threshold which is indication of which kind of majority is required in order for a proposal to pass and is primarily relevant for proposals requiring supermajorities. As a control sample, we compile the 13F ownership data by various institutional ownership owners, include index and active mutual funds, using the Thomson-Reuters Global Ownership database, and we aggregate the ownership by various institutions at the security level and divide this ownership by the number of shares outstanding.

ISS vote results dataset includes two important dates for annual shareholder meeting. The meeting date at which the voting is held, and the record date at which the vote proxies are issued using the

[6] This only includes long US Domestic Equity ETFs.

ownership of shareholders as of this 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. Additionally, we construct two proxies around the record date that capture the mismatch between the ETF economic ownership claim and the ETF voting share claim, a gap which we dub as ETF phantom shares as follows:

The first the ETF phantom shares uses ETF short interest as a measure of additional supply of economic ownership of the ETF with shares outstanding being the measure of original supply of shares, which is equal to the voting rights on those shares. This is important because ETF short interest could be a measure of operational shorting resulting from ordinary market making activities (Evans et al. (2018)) and in extreme cases, aggressive shorting of ETF shares that are not yet created for security lending and other purposes, leading to short excessively high short interest.[7] Most importantly, short interest represents the wedge between the economic ownership (total economic ownership = shares outstanding + short interest) and voting rights of the shares truly held by the ETF, and is what separates the effect of ETFs on voting rights from index funds and other investment companies/delegated portfolios. For this reason, we use the ETF short interest as a proxy for this dichotomy between implied voting rights and cash flow rights for the stocks held by the ETFs.

The second measure is based on institutional ownership of ETF shares. This measure is expected to be a weaker proxy for phantom shares. As a result of supplying new shares of the ETF to the market (through direct creation or through ETF securities lending), we are likely to see higher institutional ownership of this ETF due to two reasons. First, more ownership by institutions

[7] Relative to ETF shares outstanding. See this ETF for example: https://quotes.wsj.com/ETF/XRT. As of October 30, 2018, XRT had 15.55 million shares outstanding with 28.38 shares sold short as of October 15, 2018 and xx shares sold short as of October xx, 2018.

who are lending their shares as they have to hold these shares in their portfolios.[8] Second, because some of the buyers of the shorted shares are institutions (i.e., they have to report these shares in their 13F reports, hedge funds, advisors, insurance companies, banks, etc.). Now, institutional ownership varies from one ETF to another, especially the institutional ownership obtained by buying ETF shorted shares (given that some of the shorts are likely to be directional – not for hedging, and in these cases we should expect perhaps more retail ownership). Therefore, while short interest shows all activity of supply new ETF shares to the market (including phantom shares), institutional ownership will only reflect a portion which represents the proportion of these shares bought by institutions or held by big brokers. Therefore, it would not be as sensitive of a proxy to the phantom share phenomenon as much as short interest. Additionally, since we have short interest on a bi-weekly frequency around the record date, while the institutional ownership records are available on a quarterly basis through 13F filings, we expect stronger results with the short interest-based measures.

1.2. Creating Phantom Share Measures

The above section gives a broad overview of our two main phantom share measures. In this section we will give a more precise breakdown of how we create the short interest phantom shares and institutional ownership phantom shares (Thomson Phantoms Shares). Our first step in this process is to ensure that calculating the implied number of shares in the underlying stocks owned by the ETF, using ETF net asset value (NAV) and shares outstanding is accurate, when compared to the number of shares reported as being owned in the N-PX file. To do this, we calculate the implied number of shares the ETF holds in each underlying stock at the date the ETF reports its holdings.

[8] Mainly big brokers, such as Deutsche bank, Citi, Goldman, JP Morgan etc. See the owners' names in the XRT ETF example: https://www.nasdaq.com/symbol/xrt/institutional-holdings

To start, we calculate the implied total net assets (TNA) of the ETF using the NAV and the number of shares outstanding. We then multiply the implied TNA of the ETF by the percent of the funds' TNA that the holdings of the underlying stock represents, to give us the implied dollar value of the holding. From this implied value of the ETFs holding in the underlying stock, we divide by the implied value of the underlying by the price on the report date to calculate the implied number of shares the ETF holds in the underlying stock. As we have found that the number of shares reported by CRSP and Bloomberg can vary, we do this calculation using both the number of shares reported by CRSP and the number of shares outstanding of the ETF from Bloomberg. Going forward, we use the number of shares from the either CRSP or Bloomberg based on which implied share calculation was closest to the number of shares reported in the N-PX filing. Lastly, we drop any observation where the minimum of the smallest difference between implied shares and the actual number of shares is greater than +/- 5%. From here, we expand the holdings from the quarterly/monthly level to daily observations so we can calculate the implied number of shares owned around the record date of the meeting. After expanding the fund holdings, we adjust the percent TNA, shares outstanding, and NAV of the ETF based on changes to each and the return of the stock in the days between the last report date of the ETF and the days around the record date.

Once we have a measure of implied number of shares in the underlying held by the ETF. To calculate the phantom shares from the short interest ratio we multiply the implied number of shares owned by the ETF implied by the CRSP/Bloomberg shares by the short interest ratio of the ETF obtained from CRSP. As any short interest ratio greater than zero, would imply at least one phantom share in the underlying stock, this calculation creates the excess shares that will become our "Short Interest Phantom Shares" measure. To create the phantom share measure using the institutional ownership, we repeat the process of calculating the implied shares outlined above, but

instead of using the shares outstanding from CRSP or Bloomberg, we use the number of shares owned by institutions from the 13f fillings to calculate an TNA value of the fund based on institutional shares held. Once we obtain the implied number of shares using the institutional ownership, we subtract the implied number of shares from the CRSP/Bloomberg shares from the implied number of shares from institutional ownership to calculate the "Thomson Phantom Shares". Overall, this process gives us three measures that we will use in the voting regression: ETF shares owned, Thomson Phantom Shares, Short Interest Phantom Shares.

Next, we download the ETF voting records from ISS. We then merge the three ETF shares owned measures from the ETF holdings to 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 if the ETF votes, it is voting all of the shares owned. From this we assign all of the shares owned by the ETF in the underlying as being voted either for or against based on the ETF vote direction taken from 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 three days before the record date of the meeting. This gives us our final sample of company votes, where each agenda item from a meeting has a total number of ETF shares voted for or against and the total number of Thomson Phantom Shares and Short Interest Phantom Shares.

2. Company Vote Regressions

To create the final sample of company votes that will be used in our main regressions we merge the aggregate ETF shares, phantom shares, ETF shares voted for, and ETF shares voted against for each company agenda item with the company vote result file from ISS. For each company-meeting, this gives us the total 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 shares voted for and ETF 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, total number of shares voted against the agenda item, and the total number of broker non-votes. Finally, we then scale all of our main variables of interest and dependent variables by the total number of shares outstanding.

Once we have the total ETF 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 to 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. Excluding director elections and those agenda items with a 1% vote requirements leaves us with a sample of 60,331 company-meeting-agenda item observations;

To determine the relationship between phantom shares and 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 shares do have voting rights, we include ETF shares voted for in the votes for regression, and ETF shares voted against, in the voted against regression. Finally, the aggregate measures of both phantom shares and ETF 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, active mutual funds, block holders, and total institutional ownership. Lastly, to ensure that recent firm performance may not be affecting our results, we included a 6-month momentum measure for each firm-meeting. These filters leave us with a total of 5,128 firms and 28,397 meetings in our main test sample.

2.1 Company Vote Regressions Results

Table 4 presents our main results examining the relationship between phantom shares and votes cast in company meetings. In columns 1 to 3 of Table 4 we define phantom shares using the short interest outstanding in the ETF. In Columns 4 to 6 of Table 4 we repeat the tests from Columns 1 to 3, but use the institutional ownership from Thomson to create the phantom share variable. 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. In Columns 4 and 5 we again find results consistent

with phantom shares leading to less voting. For both short interest and institutional ownership phantom shares we find results consistent with our hypothesis, that phantom shares will lead to less voting. In each specification we find that our measure of ETF shares voted for and ETF shares voted against is positively and significantly related to the number of votes for, and number of votes against, respectively. In Columns 3 and 6 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 ETF phantom shares do not carry voting rights in the underlying stocks. In Columns 3 and 6, 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 now 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 4 provide support for our initial hypothesis that for certain shareholders of ETFs, their shares do not carry ownership rights in the underlying stock and lead to less votes cast in company meetings.

(~Insert Table 4 about here~)

In Table 5, 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. In Table 5 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 Columns 3 and 6 of Table 4, but run them on a sample of only director elections.

In Column 1 of Table 5 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 a negative and significant 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 Column 2 we replicate this test using the institutional ownership measure of phantom shares, and find consistent results. Using this setting in Table 5 we are able to examine the voting rights of phantom shares around an exogenous change to the voting rights of brokers in director elections.

(~Insert Table 5 about here~)

3. Voting Premium Regressions

We also analyze the impact of phantom shares on the 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:

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

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

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.[9]

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.

[9] Voting premium for options with maturity T can be annualized with the following formula (Kalay, Karakaş and Pant (2014): $1 - (1 - \text{voting premium})^{365/T}$. Given that the average voting premiums across firms is 13.6 basis points (Table 3) 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.

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 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. Mohseni and Karakaş (2018) and Gurun and Karakaş (2018) 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.

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. Results of Voting Premium Regressions

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 [-3,0] trading days before the cum-date, which is three trading days prior to the record date (to allow for settlement of the stock trades) for the upcoming shareholder meeting. We identify the meetings which are likely to be contentious using three variables: (i) |*Vote Difference*|*:* absolute vote difference between the percentage vote required to accept the proposal and the percentage vote that is actually cast in favor, (ii) *Critical Vote:* indicator variable special meetings, meetings with absolute vote difference less than 10%, proxy contests and meetings in which ISS is against the proposal, (iii) *Close 5%:* indicator variable for meetings with absolute vote difference is less than 5%.

(~Insert Table 6 about here~)

In Table 6, we find that voting premiums increase with the phantom shares, around the record date for shareholder meetings, particularly for meetings that are contentious. Consistent with our expectations discussed earlier, our results are stronger with the short interest-based phantom shares which are calculated with data on a bi-weekly frequency, compared to 13f-based phantom shares measure which are calculated with data on a quarterly frequency.

(~Insert Table 7 about here~)

Analyzing whether phantom shares do predict the contentious meetings, we find no effect (Table 7). 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 around the contentious shareholder meetings.

4. Conclusion

This paper analyzes the impact of ETFs on the shareholder voting on the underlying shares of the ETFs. We introduce a novel measure of the wedge between the economic ownership and the voting rights of underlying shares through ETFs, the phantom shares, and analyze the implications of phantom shares for the voting process, voting outcomes and voting premium.

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. 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 the ETFs and have 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 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.

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Table 1: ETF and Firm Summary Statistics

In this table we present the summary stats for the ETFs in our final sample and firm characteristics. 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 millions. *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. *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. *6 Month Moment* is the return of the stock over the 6 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. *Institutional Ownership, Index Mutual Fund Ownership,* and *Active Mutual Fund Ownership* is the percentage of shares outstanding owned by institutional investors, index mutual funds and active mutual funds, respectively.

Panel A: ETF Statistics

VARIABLES	Obs.	Mean	Std. Dev	p1	p25	p50	p75	p95	p99
Total Net Assets	66,157	1,273	6,202	1.00	21.20	104	486.30	5,046	21,874
Return	65,716	0.005	0.068	-0.198	-0.025	0.008	0.040	0.098	0.169
Expense Ratio	55,770	0.005	0.003	0.001	0.003	0.005	0.007	0.010	0.012
Turnover Ratio	55,013	0.413	0.634	0.020	0.100	0.240	0.490	1.310	2.670
Fund Age (Years)	63,127	4.966	3.823	0.083	1.833	4.167	7.250	12.670	15.670
Net Flows (%)	65,091	0.502	6.834	-19.770	-2.548	0.807	3.982	9.673	16.920

Panel B: Firm Statistics

VARIABLES	Obs.	Mean	Std. Dev	p1	p25	p50	p75	p99
6 Month Momentum	116,476	0.076	0.338	-0.699	-0.0788	0.0709	0.211	1.08
Book to Market	113,415	0.646	0.589	0.0362	0.305	0.532	0.848	2.478
Assets	117,226	32,523	155,257	24.51	782.5	3,357	14,385	730,906
Return on Assets	117,135	0.137	7.153	-24.61	0.091	0.803	1.988	10.296
Firm Age	117,226	28.33	18.51	3	14	22	43	66
Block Holder Own %	115,428	21.29	15.21	0.00	10.32	19.93	30.52	63.50
Institutional Own %	116,736	75.57	25.64	7.08	63.50	80.81	92.38	116.78
Index Mutual Fund Own %	117,369	6.24	2.98	0.14	4.39	6.14	8.13	13.90
Active Mutual Fund Own %	117,369	18.93	10.37	0.03	11.62	18.91	25.95	43.73

Table 2: ETF Ownership

In this table we present summary stats for the institutional ownership, shares outstanding and short interest of ETFs. *CRSP Shares* is the number of outstanding shares reported by CRSP. *Bloomberg Shares* is the number of shares outstanding reported by Bloomberg. *Institutional Shares* 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	p50	p75	p95	p99
ETF Shares (CRSP)	62,913	21,690,000	76,670,000	50,000	2,800,000	11,250,000	92,100,000	341,700,000
ETF Shares (Bloomberg)	57,762	20,710,000	74,350,000	50,000	2,700,000	10,950,000	89,150,000	297,200,000
Institutional Shares	64,330	12,520,000	52,030,000	3,149	938,091	4,678,000	52,500,000	203,300,000
13f Ratio	61,405	0.562	7.863	0.007	0.375	0.564	0.998	2.402
Short Interest Ratio	50,942	0.088	0.431	0.000	0.010	0.035	0.338	1.452

Table 3: Phantom Shares Summary Statistics

In this table we present the summary statistics for the Phantom Shares measures that we will 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. *ETF Shares* is the number of shares in the firm that are held by all ETFs in our sample. *ETF Voted For (Against)* is the number of shares owned by ETFs that voted for (against) the agenda item, as a percentage of shares outstanding. *Phantom Shares (TH)* is the total number of ETF phantom shares, implied by Thomson ownership data, as a percentage of shares outstanding. *Phantom Share (SI)* is the total number of ETF Phantom 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-3 around the cum-date, which is three trading days prior to the record date for shareholder meeting (to allow for settlement of stock trades).

VARIABLES	Obs.	Mean	Std. Dev	p1	p25	p50	p75	p99
Votes For – Per Outstanding	118,033	0.741	0.185	0.075	0.678	0.787	0.859	0.97
Votes Against – Per Outstanding	118,033	0.056	0.116	0.0001	0.005	0.0144	0.0427	0.602
Broker Non-Vote – Per Outstanding	118,033	0.071	0.086	0	0	0.0531	0.107	0.387
ETF shares – Per Outstanding	118,033	0.027	0.024	0	0.009	0.023	0.0386	0.105
ETF Shares Voted For – Per Outstanding	118,033	0.026	0.024	0	0.007	0.0217	0.0376	0.103
ETF Shares Voted Against – Per Outstanding	118,033	0.001	0.005	0	0	0	0	0.0287
Phantom shares (TH) – Per Outstanding	118,033	0.002	0.008	0	0	0.0001	0.003	0.0282
Phantom shares (SI) – Per Outstanding	118,033	0.005	0.006	0	0.0003	0.0018	0.0087	0.0281
Voting Premium (Median – [3,0] days of cum-date)	101,405	0.136	1.122	-1.409	-0.056	0.031	0	0.0337

Table 4: Phantom Shares and Votes Cast

In this Table we examine the effect that Phantom Shares have on voting in company meetings. In Columns 1 and 4 the dependent variable is the number of votes for the agenda item as a percentage of shares outstanding. Columns 2 and 5 use the number of shares voted against, while the dependent variable in Columns 3 and 6 is the number of broker non-votes, both as a percentage of shares outstanding. Phantom Shares (SI) and Phantom Shares (TH) are defined as the total number of phantom shares defined using short interest and Thomson ownership, respectively. Both are a percentage of shares outstanding. ETF Shares For (Against) is the percentage of shares outstanding that were held by ETFs and voted for (against) the item. ETFs Shares is the total number of shares held by ETFs. All control variables are defined the same as in Table 1. 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 are 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	(4) For	(5) Against	(6) Broker Non-Vote
Phantom Shares (SI)	-4.578***	-0.890***	0.286***			
	(0.306)	(0.140)	(0.078)			
Phantom Shares (TH)				-1.207***	-0.355***	0.118**
				(0.199)	(0.094)	(0.048)
ETF Shares For	4.134***			3.566***		
	(0.190)			(0.178)		
ETF Shares Against		10.641***			10.612***	
		(0.415)			(0.416)	
ETF Shares			-0.011			0.030
			(0.026)			(0.024)
Index Mutual Fund Ownership	-0.875***	0.036	-0.004	-1.001***	-0.018	-0.000
	(0.093)	(0.053)	(0.031)	(0.094)	(0.051)	(0.031)
Active Mutual Fund Ownership	0.257***	-0.004	-0.021***	0.242***	-0.006	-0.020***
	(0.019)	(0.013)	(0.007)	(0.019)	(0.013)	(0.007)
log (Assets)	-0.024***	0.015***	-0.001	-0.022***	0.016***	-0.001
	(0.004)	(0.003)	(0.002)	(0.004)	(0.003)	(0.002)
Company Age	-0.009***	-0.005***	0.004***	-0.006***	-0.005***	0.004***
	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)
Institutional Ownership	0.015	0.011	-0.039***	-0.000	0.008	-0.039***
	(0.011)	(0.008)	(0.006)	(0.011)	(0.008)	(0.006)
6-Month Momentum	-0.000	-0.001	0.002	0.001	-0.001	0.002
	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Ownership by Block Holders	0.008	-0.011	0.005	0.018*	-0.009	0.004
	(0.011)	(0.007)	(0.004)	(0.011)	(0.007)	(0.004)
Book to Market	-0.008***	0.002**	0.006***	-0.009***	0.002**	0.006***
	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)
Return on Assets	0.027	-0.018**	0.002	0.013	-0.021**	0.003
	(0.023)	(0.009)	(0.009)	(0.023)	(0.009)	(0.009)
Observations	60,331	60,331	60,331	60,331	60,331	60,331
R-squared	0.407	0.516	0.291	0.400	0.515	0.291
Fund Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table 5: Broker Non-Votes in Director Elections

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. For this test, we include only agenda items that are director elections. In Columns 1 and 2 the dependent variable is the number of broker non-votes case in the election as a percentage of shares outstanding. We split the Phantom Shares measure using the Post 2010 dummy. Phantom Shares Pre 2010 (Post 2010) replicate the Phantom Shares variable in Table 3, but take the value of zero for years after 2010 (before 2010). 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 the same as in Table 1. All models include firm fixed effects. Standard errors are clustered by firm and meeting are in parentheses *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

VARIABLES	(1) Broker Non-Vote	(2) Broker Non-Vote
Phantom Shares (SI) – Pre 2010	-0.930***	
	(0.199)	
Phantom Shares (SI) – Post 2010	2.551***	
	(0.183)	
Phantom Shares (TH) – Pre 2010		-0.782***
		(0.248)
Phantom Shares (TH) – Post 2010		1.030***
		(0.148)
Post 2010	0.019***	0.025***
	(0.002)	(0.002)
Observations	152,027	152,027
R-squared	0.751	0.740
Firm Controls	Yes	Yes
Firm Fixed Effects	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. In Columns 1 to 3 the Phantom Shares measure is created using short interest, and is created using ownership data from Thomson in Columns 4 to 6. 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 [0,-3] days around the cum-date, which is three trading days prior to the record date for shareholder meeting (to allow for settlement of stock trades). *Vote Difference* is defined as the absolute value of the difference between the percent voted for and the percent requirement to pass. *Critical Vote* is a dummy variable that takes the value of 1 if it is an annual meeting and the vote difference was less than 10%, was an annual meeting/special item, a special meeting, a proxy contest, or if ISS recommended voting against the item. *Close Vote* is a dummy that takes the value of one if the absolute value of the vote difference was less than 5%. 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 the same as in Table 1. All models include firm fixed effects. Standard errors are clustered by firm and meeting are in parentheses *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

	Phantom Shares (SI)			Phantom Shares (TH)		
VARIABLES	(1) Voting Premium	(2) Voting Premium	(3) Voting Premium	(4) Voting Premium	(5) Voting Premium	(6) Voting Premium
Phantom Shares	0.132**	0.024	0.036	0.053	-0.003	0.001
	(0.065)	(0.038)	(0.040)	(0.039)	(0.014)	(0.014)
Absolute Vote Difference	0.000			-0.000		
	(0.000)			(0.000)		
Phantom × Abs. Vote Diff.	-0.225**			-0.117		
	(0.088)			(0.076)		
Critical Vote		-0.000			0.000	
		(0.000)			(0.000)	
Phantom Shares × Critical Vote		0.086**			0.050*	
		(0.044)			(0.030)	
Close Vote (5%)			-0.000			-0.000
			(0.000)			(0.000)
Phantom Shares × Close Vote			0.081*			0.112**
			(0.047)			(0.055)
Observations	57,765	57,771	57,771	57,765	57,771	57,771
R-squared	0.440	0.440	0.439	0.439	0.439	0.439
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	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. *Vote Difference* is defined as the absolute value of the difference between the percent voted for and the percent requirement to pass. *Critical Vote* is a dummy variable that takes the value of 1 if it is an annual meeting and the vote difference was less than 10%, was an annual/special item, a special meeting, a proxy contest, or if ISS recommended voting against the item. *Close 5%* is a dummy that takes the value of one if the absolute value of the vote difference was less than 5%. 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 the same as in Table 1. All models include firm fixed effects. Standard errors are clustered by firm and meeting are in parentheses *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively.

VARIABLES	(1) |Vote Difference|	(2) Critical Vote	(3) Close 5%	(4) |Vote Difference|	(5) Critical Vote	(6) Close 5%
Phantom Shares (SI)	-0.144	-0.129	-0.109			
	(0.092)	(0.286)	(0.092)			
Phantom Shares (TH)				-0.027	-0.145	-0.027
				(0.053)	(0.155)	(0.052)
ETF Shares	0.094***	-0.246**	0.022	0.073**	-0.253**	0.007
	(0.035)	(0.119)	(0.032)	(0.031)	(0.109)	(0.029)
Observations	109,234	109,244	109,244	109,234	109,244	109,244
R-squared	0.173	0.186	0.083	0.173	0.186	0.083
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes