This note concerns the link between mutual funds in the ISS voting dataset and mutual fund identifiers (at the portfolio level) in the CRSP Mutual fund dataset, as implemented in "Are Mutual Funds Active Voters?" 2015, with Michelle Lowry, Review of Financial Studies 28(2), 446-485.

Peter Iliev, March 22, 2021

Our link is unfortunately pretty outdated and thus I would not use it for any new project. The first issue is that it is for the 2003-2010 period, and a lot of new funds will not be linked. The second and bigger issue is that this link is now superseded by new data, which allows for a much better/tighter link to be made. Hence, I do not want researchers to rely on our original link because it can be done much better. Having said this, I can share the original link upon request.

Linking on names is not the first best approach anymore. Unfortunately, that's what we had in our RFS article, it was the best available back then. Here are the details on how to make a better link between the ISS Voting Analytics files and the CRSP Mutual Fund dataset. As before, an intermediate step will be to get the original N-PX filings in EDGAR and figure out mutual fund tickers. Fortunately, a much better link can be established now.

The new post-2005 ISS N-PX files have a field that references the original EDGAR document -- *npxfileid* with values like "0000932471-17-005229". This is the value for the VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND votes on Alphabet Inc. for the June 7th, 2017 meeting. The link to the original EDGAR source document not only gives us insight into where the data comes from. It also gives immediate access to the EDGAR filing header information, which provides the tickers for the funds in question (and a bunch of other Vanguard funds that file together). In this meeting, the Vanguard fund in question voted 'Withhold' or 'Against' on multiple proposals: three director nominations, Against CEO pay, and having one vote per share!

Here is a snippet from the ISS data:

	institutionname	institutio~d	fundname	fundid	npxfileid	ballotitem~r	fundvote
1	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	1.1	For
2	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	1.2	For
3	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	1.3	For
4	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	1.4	Withhold
5	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	1.5	For
6	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	1.6	For
7	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	1.7	For
8	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	1.8	For
9	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	1.9	For
10	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	1.10	Withhold
11	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	1.11	Withhold
12	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	1.12	For
13	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	2	For
14	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	3	Against
15	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	4	Against
16	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	5	One Year
17	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	6	For
18	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	7	Against
19	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	8	Against
20	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	9	Against
21	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	10	Against
22	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	11	Against
23	Vanguard Group, Inc.	72998	VANGUARD INSTITUTIONAL TOTAL STOCK MARKET INDEX FUND	15441	0000932471-17-005229	12	Against

Using the N-PF ID provided, these records can be linked to the following EDGAR html and text filing (this can be coded in python/perl using the EDGAR FTP index files[1] that give locations for each filing). First, the human-friendly htm file is here:

https://www.sec.gov/Archives/edgar/data/862084/000093247117005229/institutionalindexfunds0870.htm

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[1] The instructions on how to access files in EDGAR with code is here: https://www.sec.gov/edgar/searchedgar/accessing-edgar-data.htm .

In this file, we can confirm the relevant field for Alphabet:

```
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ISSUER:          Alphabet Inc.
TICKER:          GOOGL                      CUSIP:  02079K305
MEETING DATE:    6/7/2017                                                              FOR/AGAINST
PROPOSAL:                                             PROPOSED BY  VOTED?   VOTE CAST      MGMT

PROPOSAL #1.1: ELECT DIRECTOR LARRY PAGE                ISSUER     YES       FOR           FOR

PROPOSAL #1.2: ELECT DIRECTOR SERGEY BRIN               ISSUER     YES       FOR           FOR

PROPOSAL #1.3: ELECT DIRECTOR ERIC E. SCHMIDT           ISSUER     YES       FOR           FOR

PROPOSAL #1.4: ELECT DIRECTOR L. JOHN DOERR             ISSUER     YES     WITHHOLD      AGAINST

PROPOSAL #1.5: ELECT DIRECTOR ROGER W. FERGUSON, JR.    ISSUER     YES       FOR           FOR

PROPOSAL #1.6: ELECT DIRECTOR DIANE B. GREENE           ISSUER     YES       FOR           FOR

PROPOSAL #1.7: ELECT DIRECTOR JOHN L. HENNESSY          ISSUER     YES       FOR           FOR

PROPOSAL #1.8: ELECT DIRECTOR ANN MATHER                ISSUER     YES       FOR           FOR

PROPOSAL #1.9: ELECT DIRECTOR ALAN R. MULALLY           ISSUER     YES       FOR           FOR

PROPOSAL #1.10: ELECT DIRECTOR PAUL S. OTELLINI         ISSUER     YES     WITHHOLD      AGAINST

PROPOSAL #1.11: ELECT DIRECTOR K. RAM SHRIRAM           ISSUER     YES     WITHHOLD      AGAINST

PROPOSAL #1.12: ELECT DIRECTOR SHIRLEY M. TILGHMAN      ISSUER     YES       FOR           FOR

PROPOSAL #2: RATIFY ERNST & YOUNG LLP AS AUDITORS       ISSUER     YES       FOR           FOR

PROPOSAL #3: AMEND OMNIBUS STOCK PLAN                   ISSUER     YES     AGAINST       AGAINST

PROPOSAL #4: ADVISORY VOTE TO RATIFY NAMED EXECUTIVE    ISSUER     YES     AGAINST       AGAINST
OFFICERS' COMPENSATION

PROPOSAL #5: ADVISORY VOTE ON SAY ON PAY FREQUENCY      ISSUER     YES     ONE YEAR      AGAINST

PROPOSAL #6: APPROVE RECAPITALIZATION PLAN FOR ALL   SHAREHOLDER   YES       FOR         AGAINST
STOCK TO HAVE ONE-VOTE PER SHARE

PROPOSAL #7: REPORT ON LOBBYING PAYMENTS AND POLICY  SHAREHOLDER   YES     AGAINST         FOR
```

This htm file is, however, not the real target. What is really useful, though, is going to the text filing that has "hidden" header information. The npx id in the ISS dataset refers to this filing (see the 0000932471-17-005229 number in the link, this link can be easily generated from the EDGAR index files):

https://www.sec.gov/Archives/edgar/data/862084/000093247117005229/0000932471-17-005229.txt

And here is how the hidden header info looks:

```
                    DATE OF NAME CHANGE:     19900701
<SERIES-AND-CLASSES-CONTRACTS-DATA>
<EXISTING-SERIES-AND-CLASSES-CONTRACTS>
<SERIES>
<OWNER-CIK>0000862084
<SERIES-ID>S000002855
<SERIES-NAME>Vanguard Institutional Total Stock Market Index Fund
<CLASS-CONTRACT>
<CLASS-CONTRACT-ID>C000007828
<CLASS-CONTRACT-NAME>Institutional Shares
<CLASS-CONTRACT-TICKER-SYMBOL>VITNX
</CLASS-CONTRACT>
<CLASS-CONTRACT>
<CLASS-CONTRACT-ID>C000007829
<CLASS-CONTRACT-NAME>Institutional Plus Shares
<CLASS-CONTRACT-TICKER-SYMBOL>VITPX
</CLASS-CONTRACT>
</SERIES>
</EXISTING-SERIES-AND-CLASSES-CONTRACTS>
</SERIES-AND-CLASSES-CONTRACTS-DATA>
</SEC-HEADER>
<DOCUMENT>
<TYPE>N-PX
<SEQUENCE>1
<FILENAME>institutionalindexfunds0870.htm
<TEXT>
```

Here, we can learn that the fund has two classes (Institutional Shares and Institutional Plus Shares) with associated tickers VITNX and VITPX. Going to the N-PX filing provides a very tight link between the name of the mutual fund in ISS and the mutual funds reporting on each form (usually up to 20 funds). Hence, from the N-PX header, with Python/Perl one can immediately grab the fund class tickers that correspond to ISS fund IDs and that map directly to the CRSP mutual fund database (which has fund tickers). Tickers are sometimes re-used but this is a minor issue that can be cleaned up. This approach avoids the horrific (and mistake-prone) issue of matching on fund family names because those names change and are not good descriptors. I wish we had this before, and we did ask for it, but ISS was not providing this in their data when we bought it.

Going to the CRSP mutual fund database, the two vanguard fund classes map into two different fund identifiers (31333 and 31334) but have the same fund manager (Michael Perre in 2017) and the same "portfolio" (portfolio identifier 1026240). Note that a few mutual funds (and many more classes) will often map to the same portfolio at a point in time. As expected, the "Plus" fund has significantly lower management fees (1.9bp vs. 3.9bp). Speaking of micro 101 price discrimination….

To sum up, the new *npxfileid* variable in the ISS Voting Analytics database provides a much better link to the fund tickers. It is still a coding exercise where one has to download N-PX filings and assign funds in ISS to funds (and classes) in the N-PX filing, and then perform merge to CRSP that has to further account for the (rare) ticker reassignments and the dynamic fund restructuring and rebranding in the mutual fund industry.

All these things take a large amount of time, energy, and often RA $. For many projects, it may be sufficient to link the voting at the family level. In that case, you do not need the detailed fund level link that we compiled. ISS has about 700 families so this is an easier three-hour excel job. This will save you a lot of headaches. The appropriateness of linking at the family level depends on the types of issues you are analyzing. On many types of issues, funds within the same family rarely disagree. For example, the disagreement within a family is only 1.39% on director elections and 2 – 3% on Say-on-Pay votes. However, it is a higher 6.2% - 7.4% on more contentious cases, for example when ISS disagrees with firm management (Table 8, Iliev and Lowry, 2015).