**Reasoning for the Use of Table 2**

The existing methodology used to construct Insider Ownership counts appears to be 1) modeled after Thomson Reuters/WRDS documentation and 2) excludes Table 2 from the construction. Unfortunately, all Class B shares, if they are correctly filed with the SEC, are located in Table 2, held either directly or indirectly.

Additionally, options and more complex financial instruments tend to be held directly. Because these complex instruments lead to exceedingly common filing errors, it is very difficult, if not impossible to correctly ascertain 1) the number of options and 2) whether or not a transaction involves a derivative which secures a right to equity or whether it does not, this second point is especially valuable for the methodology below. Because indirect transactions on Table 2 have a much lower incidence of complex financial instruments, it is feasible to construct a count of indirectly held Class B Shares due to the corresponding lower incidence of errors. The dataset I began the construction with can be found here “Dropbox/Insider Ownership/Constructed/STATA/owni2.dta”.

Note on Options: It is essentially impossible to construct any reasonable count of an insider’s options, as Thomson Reuter’s admits in their documentation. Hence the reason why they are not included as an actual end goal of this construction.

**Construction Methodology**

**Initial Counts**

If an insider holds class B shares for their initial filing (in most cases prior to the IPO), they will declare those holdings in a form 3 filing with no associated transaction code. An example of this can be found on the sheet titled “Initial Holdings Example” of “basecase.xlsx” in the Tables and Graphics folder. A more user-friendly version of these observations is shown below in Figure 1, this can also be found on sheet (Initial Holdings Example Abv). For descriptions of variable names and to see the file this was sourced from, use “/Dropbox/Insider Ownership/Constructed/STATA/owni2.dta” for the filepath.

Figure 1



A trancode value of 8 indicates that no transaction code was filed or detected by Thomson Reuters. If this code is found in a form 3 filing (as the formtype variable indicates), it indicates initial ownership. The two values of the “derivative” variable are CVP and UKN. CVP indicates convertible preferred shares; these are typically converted into “normal” class B shares after the IPO, but this does not always occur. The UKN value indicates that the derivative type is unknown; however, if UKN is present and “xdate” and “tdate” are missing, this transaction almost certainly indicates a transaction or a declaration of class B shares. “xdate” is a variable which records the earliest an option can be exercised, and “tdate” indicates the expiration date of that same option.

Because CVP shares often have different conversion rates (i.e., one could hold 5,000 CVP shares that convert to 10,000 Class B shares), it is useful to use the “shares” variable which indicates the number of underlying shares. For all intents and purposes, CVP shares as well as various other “preferred” shares should be considered class B shares.

Using an identified list of derivative types (see “ Dropbox/Insider Ownership/Notes/Non-Equity Derivative Types.rtf”), marked by the “derivative” variable, that confer equity ownership, I calculate holdings by individual by underlying shares to avoid issues related to conversion. After correcting acquisition and disposition errors, observations not including these equity derivative types are not considered.

A potential source of error in initial counts is when insiders hold derivatives conferring equity, but they do not show up in the Thomson Reuters’ dataset. So, later, if an insider disposes of shares without initially declaring any, a negative count occurs. To account for this, I mark insiders who do not initially disclose their shares and ignore disposal of shares such as CVP shares or other preferred shares.

**Duplication of Insiders**

In many cases, there are identical share counts associated with multiple insiders. After looking at the original filings to the SEC, I have concluded that the vast majority of these instances are cases where there is a singular holding company and multiple insiders are either representatives or stockholders of that holding company.

Due to SEC rules, each of these representatives and stockholders must declare ownership of all shares that this holding company possesses for the specific firm. So, to illustrate, if person A holds 5% equity in Holding Company X, and person B holds 50% equity in Holding Company X, and Holding Company X holds 1,000 shares of Firm Y, then both person A and person B are, as far as I can tell, required to file holdings of 1,000 shares on each of their forms. The consequences of this lead to two problems. Firstly, there is an overcount of initial holdings, and, secondly, more “minor” representatives of the holding company, such as person A in the example above, often don’t continue documenting share transactions.

There are two approaches that we can take to fix this issue. The first is a fairly blunt force instrument which considers only holdings which are assigned to board members or other managers. This list is found in the Notes folder in the file “PrimaryRolecodes.rtf”. Now, this likely does not solve the problem completely because one could imagine two members of the board who are representatives of a holding company and this issue would still arise. But I can say with some certainty, that it removes a lot of duplicated holdings. Once selecting these individual the rest of the construction proceeds.

Before moving on, I will mention the second approach that we can take. It appears that initial shareholdings are fairly different from insider to insider within a firm. For instance, person A and person B are very unlikely to hold the same number of initial shares. For this reason, if there are more than one insiders that hold identical initial share counts, it is likely that a holding company is involved. Because we want the most complete coverage of transactions, I have totaled the number of transactions by insider, and I have decided to only include the insider that makes the highest number of transactions in the case where multiple insiders have the same number of shares. The insiders remaining after this process will be called “Unique Insiders” from now on.

**Acquisition and Disposition Flags**

Whenever trancode is not missing or not equal to 8, then an acquisition or disposition of shares has occurred. In the TR dataset, there exists a pattern where an insider disposes of preferred shares, such as CVP, and then the following transaction involves an identical number of shares with the derivative field’s value being either UKN or some other equity type. When one looks at the SEC filings, it is apparent that this next transaction is an “acquisition” of shares caused by the conversion of CVP shares.

Unfortunately, Thomson Reuters often “corrects” the second transaction’s acqdisp code to a ‘D’, when it should be an ‘A’ (an acquisition). This error also occurs with derivatives such as options or warrants. To account for this error, I check the previous observation for each transaction, and if the previous observation is of a derivative type associated with this error, the number of shares are the same, and the current observation is a disposal, then I update the transaction field to include an acquisition.

Using the same individual as earlier, for the sake of continuity, we can see an example of the error associated with the acqdisp variable. On line 3 of Figure 2, Andreessen disposes of his convertible preferred shares, presumably a conversion to Class B. On the next line, an identical value in the “shares” variable is found as well as the derivative being of type “UKN”, and, as from earlier, since it is missing both xdate and tdate, we can be fairly sure this involves equity. However, the acqdisp field is marked as ‘D’. In my construction, I identify this as an error, and I correct the acqdisp field to ‘A’

Figure 2



Additionally, sometimes insiders will exercise multiple options or preferred shares and then include a transaction observation which is the sum of these multiple transactions. To account for this, not only is the previous observation checked for identical share counts and same values in other fields, the sum of the previous two observations is also checked. If this sum is the same as the disposal, then the current observation is corrected to be an acquisition.

**Final Construction**

After all of the above operations are performed, the process is fairly simple. Initial share counts are computed for each firm and insider, and then, for each observation, if the derivative type matches with a list of approved types, then the number of shares is either added or subtracted to the running total depending on whether the acqdisp field contains an ‘A’ or a ‘D’ respectively.

Because of various errors that I cannot or did not account for in my construction, there may still be issues with share counts. In an effort to combat this, after every acquisition or disposition, the current running total is checked against the “derivheld” variable. “derivheld” is essentially the number of derivatives of that type held following the transaction. However, it is necessarily an undercount of total shares held for various reasons that are not necessarily important here. Regardless, if derivheld is less than the running total, there has certainly been a mistake, and so the running total is instead set to the value of derivheld, and the program continues.

Only the final running total per year is kept for the purposes of the final construction, and because there are sometimes multi-year gaps in-between filings, the last total share count is carried forward because they still possess those shares for all years in-between transactions. Each of the counts for the insiders are summed by year to achieve a constructed count of indirectly held Class B shares for each firm.

For the constructed files for all firms use /Users/mwinkley/Dropbox/Insider Ownership/Constructed/STATA/obidualclassIO.dta for board members only and “/Users/mwinkley/Dropbox/Insider Ownership/Constructed/STATA/uidualclassIO.dta” for unique insiders. (The naming convention indicating that these updated counts only update dual-class firms, and, in fact, do not update for single-class firms).

**Results**

Table 1 reports the percentage of equity that insiders hold for all firms using the approach only including unique insiders compared to the original dataset provided. Table 2 reports percentage of equity that insiders hold for all firms using the approach only including board members compared to the original dataset provided.

Tables 1 and 2 are over the whole sample of dual-class firms. Tables 3 and 4 are over a subset of dual-class firms with a sunset transfer provision.

In order to verify the construction, Tables 3-6 use observations only from firms with a sunset transfer provision. This is because, if a firm has said provision, all Class B shares are guaranteed to be held by insiders.

Table 1. Summary Statistics, Insider Ownership Comparison (Unique Insiders)

|  |  |
| --- | --- |
| Updated Insider Ownership Percentage | 0.95 |
|  | (6.199) |
|  |  |
| Old Insider Ownership Percentage | 0.74 |
|  | (6.062) |
| *N* | 8292 |

Standard deviations in parentheses.

Table 2. Summary Statistics, Insider Ownership Comparison for Board Members

|  |  |
| --- | --- |
| Updated Insider Ownership Percentage | 0.90 |
|  | (6.175) |
|  |  |
| Old Insider Ownership Percentage | 0.74 |
|  | (6.062) |
| *N* | 8292 |

Standard deviations in parentheses.

Table 3. Percentage of Class B Shares Accounted for (Unique Insiders)

|  |  |
| --- | --- |
| correctness | 0.84 |
|  | (1.762) |
| *N* | 375 |

mean coefficients; sd in parentheses

Table 4. Percentage of Class B Shares Accounted for (Only Board Insiders)

|  |  |
| --- | --- |
| correctness | 0.67 |
|  | (1.276) |
| *N* | 375 |

mean coefficients; sd in parentheses

**Table 6. Correlation of Class B share counts with Constructed Counts (Unique Insiders)**

|  |  |
| --- | --- |
|  | (1) |
|  | # of Class B Shares |
| # of Indirectly Held Class Bs (Constructed) | 0.307 |
|  |  |
| *N* | 258 |
| *R*2 |  |

Standard errors in parentheses

**Table 6. Correlation of Class B share counts with Constructed Counts (Board Members)**

|  |  |
| --- | --- |
|  | (1) |
|  | # of Class B Shares |
| # of Indirectly Held Class Bs (Constructed) | 0.332 |
|  |  |
| *N* | 246 |
| *R*2 |  |

Standard errors in parentheses

**Graphs**

Reminder: All graphs below include only firms for which 1) a sunset transfer provision is in place and 2) constructed indirect share counts are non-zero. (258 observations and 47 firms for Unique Insiders, 204 observations and 42 firms for Board Members)

**Unique Insiders** **(Figure 3) Scatterplot**

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**Board Members (Figure 4) Scatterplot**



**Unique Owners (Figure 5)**

**Board Members (Figure 6)**



**Unique Insiders (Figure 7)**



**Board Members (Figure 8)**

