Tech Financials

Richard Tarbell

8/31/2021

##Reading data

We have a stata file so we use 'haven' package to read it

```
d1 <- haven::read_dta("tech_co_cstat_dta.zip")
```

```
class(d1)
```

```
## [1] "tbl_df"     "tbl"        "data.frame"
```

```
names(d1)
```

```
##  [1] "gvkey"    "datadate" "fyear"    "indfmt"   "consol"   "popsrc"
##  [7] "datafmt"  "tic"      "cusip"    "conm"     "curcd"    "fyr"
## [13] "at"       "capx"     "che"      "cogs"     "csho"     "cshpri"
## [19] "cshr"     "dlc"      "dltt"     "dvc"      "dvt"      "ebit"
## [25] "ebitda"   "emp"      "gdwl"     "lct"      "ni"       "oancf"
## [31] "oiadp"    "oibdp"    "opiti"    "pi"       "ppent"    "re"
## [37] "rect"     "revt"     "sale"     "seq"      "xad"      "xlr"
## [43] "xrd"      "xsga"     "exchg"    "cik"      "costat"   "naicsh"
## [49] "sich"     "prcc_c"   "mkvalt"   "prcc_f"   "add1"     "add2"
## [55] "add3"     "add4"     "addzip"   "busdesc"  "city"     "conml"
## [61] "county"   "ggroup"   "gind"     "gsector"  "gsubind"  "naics"
## [67] "sic"      "state"    "ipodate"
```

```
head(d1, n=10)
```

```
## # A tibble: 10 x 69
##    gvkey  datadate   fyear indfmt consol popsrc datafmt tic   cusip  conm  curcd
##    <chr>  <date>     <dbl> <chr>  <chr>  <chr>  <chr>   <chr> <chr>  <chr> <chr>
##  1 001690 2010-09-30  2010 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  2 001690 2011-09-30  2011 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  3 001690 2012-09-30  2012 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  4 001690 2013-09-30  2013 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  5 001690 2014-09-30  2014 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  6 001690 2015-09-30  2015 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  7 001690 2016-09-30  2016 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  8 001690 2017-09-30  2017 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  9 001690 2018-09-30  2018 INDL   C      D      STD     AAPL  03783~ APPL~ USD
## 10 001690 2019-09-30  2019 INDL   C      D      STD     AAPL  03783~ APPL~ USD
## # ... with 58 more variables: fyr <dbl>, at <dbl>, capx <dbl>, che <dbl>,
## #   cogs <dbl>, csho <dbl>, cshpri <dbl>, cshr <dbl>, dlc <dbl>, dltt <dbl>,
## #   dvc <dbl>, dvt <dbl>, ebit <dbl>, ebitda <dbl>, emp <dbl>, gdwl <dbl>,
## #   lct <dbl>, ni <dbl>, oancf <dbl>, oiadp <dbl>, oibdp <dbl>, opiti <dbl>,
## #   pi <dbl>, ppent <dbl>, re <dbl>, rect <dbl>, revt <dbl>, sale <dbl>,
```

```
## #   seq <dbl>, xad <dbl>, xlr <dbl>, xrd <dbl>, xsga <dbl>, exchg <dbl>,
## #   cik <chr>, costat <chr>, naicsh <dbl>, sich <dbl>, prcc_c <dbl>, ...
```

```
tail(d1, n=3)
```

```
## # A tibble: 3 x 69
##   gvkey  datadate   fyear indfmt consol popsrc datafmt tic   cusip  conm   curcd
##   <chr>  <date>     <dbl> <chr>  <chr>  <chr>  <chr>   <chr> <chr>  <chr>  <chr>
## 1 184996 2018-12-31  2018 INDL   C      D      STD     TSLA  88160~ TESLA~ USD
## 2 184996 2019-12-31  2019 INDL   C      D      STD     TSLA  88160~ TESLA~ USD
## 3 184996 2020-12-31  2020 INDL   C      D      STD     TSLA  88160~ TESLA~ USD
## # ... with 58 more variables: fyr <dbl>, at <dbl>, capx <dbl>, che <dbl>,
## #   cogs <dbl>, csho <dbl>, cshpri <dbl>, cshr <dbl>, dlc <dbl>, dltt <dbl>,
## #   dvc <dbl>, dvt <dbl>, ebit <dbl>, ebitda <dbl>, emp <dbl>, gdwl <dbl>,
## #   lct <dbl>, ni <dbl>, oancf <dbl>, oiadp <dbl>, oibdp <dbl>, opiti <dbl>,
## #   pi <dbl>, ppent <dbl>, re <dbl>, rect <dbl>, revt <dbl>, sale <dbl>,
## #   seq <dbl>, xad <dbl>, xlr <dbl>, xrd <dbl>, xsga <dbl>, exchg <dbl>,
## #   cik <chr>, costat <chr>, naicsh <dbl>, sich <dbl>, prcc_c <dbl>, ...
```

```
d1[1:10,]
```

```
## # A tibble: 10 x 69
##    gvkey  datadate   fyear indfmt consol popsrc datafmt tic   cusip  conm  curcd
##    <chr>  <date>     <dbl> <chr>  <chr>  <chr>  <chr>   <chr> <chr>  <chr> <chr>
##  1 001690 2010-09-30  2010 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  2 001690 2011-09-30  2011 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  3 001690 2012-09-30  2012 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  4 001690 2013-09-30  2013 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  5 001690 2014-09-30  2014 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  6 001690 2015-09-30  2015 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  7 001690 2016-09-30  2016 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  8 001690 2017-09-30  2017 INDL   C      D      STD     AAPL  03783~ APPL~ USD
##  9 001690 2018-09-30  2018 INDL   C      D      STD     AAPL  03783~ APPL~ USD
## 10 001690 2019-09-30  2019 INDL   C      D      STD     AAPL  03783~ APPL~ USD
## # ... with 58 more variables: fyr <dbl>, at <dbl>, capx <dbl>, che <dbl>,
## #   cogs <dbl>, csho <dbl>, cshpri <dbl>, cshr <dbl>, dlc <dbl>, dltt <dbl>,
## #   dvc <dbl>, dvt <dbl>, ebit <dbl>, ebitda <dbl>, emp <dbl>, gdwl <dbl>,
## #   lct <dbl>, ni <dbl>, oancf <dbl>, oiadp <dbl>, oibdp <dbl>, opiti <dbl>,
## #   pi <dbl>, ppent <dbl>, re <dbl>, rect <dbl>, revt <dbl>, sale <dbl>,
## #   seq <dbl>, xad <dbl>, xlr <dbl>, xrd <dbl>, xsga <dbl>, exchg <dbl>,
## #   cik <chr>, costat <chr>, naicsh <dbl>, sich <dbl>, prcc_c <dbl>, ...
```

```
attributes(d1$gvkey)
```

```
## $label
## [1] "Global Company Key"
##
## $format.stata
## [1] "%6s"
```

```
attributes(d1$datadate)
```

```
## $label
## [1] "Data Date"
##
## $class
## [1] "Date"
```

```
##
## $format.stata
## [1] "%td"
```

```
attributes(d1$datadate)$label <- "Fiscal year end date"
```

```
attributes(d1$datadate)
```

```
## $label
## [1] "Fiscal year end date"
##
## $class
## [1] "Date"
##
## $format.stata
## [1] "%td"
```

```
glimpse(d1)
```

```
## Rows: 109
## Columns: 69
## $ gvkey    <chr> "001690", "001690", "001690", "001690", "001690", "001690", "~
## $ datadate <date> 2010-09-30, 2011-09-30, 2012-09-30, 2013-09-30, 2014-09-30, ~
## $ fyear    <dbl> 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2~
## $ indfmt   <chr> "INDL", "INDL", "INDL", "INDL", "INDL", "INDL", "INDL", "INDL~
## $ consol   <chr> "C", "C", "C", "C", "C", "C", "C", "C", "C", "C", "C", "C", "~
## $ popsrc   <chr> "D", "D", "D", "D", "D", "D", "D", "D", "D", "D", "D", "D", "~
## $ datafmt  <chr> "STD", "STD", "STD", "STD", "STD", "STD", "STD", "STD", "STD"~
## $ tic      <chr> "AAPL", "AAPL", "AAPL", "AAPL", "AAPL", "AAPL", "AAPL", "AAPL~
## $ cusip    <chr> "037833100", "037833100", "037833100", "037833100", "03783310~
## $ conm     <chr> "APPLE INC", "APPLE INC", "APPLE INC", "APPLE INC", "APPLE IN~
## $ curcd    <chr> "USD", "USD", "USD", "USD", "USD", "USD", "USD", "USD", "USD"~
## $ fyr      <dbl> 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 12, 12, 12, 12, 12, 12, 12, ~
## $ at       <dbl> 75183, 116371, 176064, 207000, 231839, 290479, 321686, 375319~
## $ capx     <dbl> 2005, 4260, 8295, 8165, 9571, 11247, 12734, 12451, 13313, 104~
## $ che      <dbl> 25620, 25952, 29129, 40546, 25077, 41601, 67155, 74181, 66301~
## $ cogs     <dbl> 38609, 62609, 84641, 99849, 104312, 129589, 121576, 131648, 1~
## $ csho     <dbl> 915.970, 929.277, 939.208, 899.213, 5866.161, 5578.753, 5336.~
## $ cshpri   <dbl> 909.461, 924.258, 934.818, 925.331, 6085.572, 5753.421, 5470.~
## $ cshr     <dbl> 29.405, 28.543, 27.696, 24.710, 26.112, 25.924, 25.641, 25.33~
## $ dlc      <dbl> 0, 0, 0, 0, 6308, 10999, 11605, 18473, 20748, 16240, 15229, 6~
## $ dltt     <dbl> 0, 0, 0, 16960, 28987, 53463, 75427, 97207, 93735, 91807, 107~
## $ dvc      <dbl> 0, 0, 2523, 10676, 11215, 11627, 12188, 12803, 13735, 14129, ~
## $ dvt      <dbl> 0, 0, 2523, 10676, 11215, 11627, 12188, 12803, 13735, 14129, ~
## $ ebit     <dbl> 18385, 33790, 55241, 48999, 52503, 71230, 59476, 61344, 70662~
## $ ebitda   <dbl> 19317, 35612, 58446, 55756, 60449, 81730, 69276, 70744, 81565~
## $ emp      <dbl> 49.400, 63.300, 76.100, 84.400, 97.000, 110.000, 116.000, 123~
## $ gdwl     <dbl> 741, 896, 1135, 1577, 4616, 5116, 5414, 5717, NA, NA, NA, 251~
## $ lct      <dbl> 20722, 27970, 38542, 43658, 63448, 80610, 79006, 100814, 1168~
## $ ni       <dbl> 14013, 25922, 41733, 37037, 39510, 53394, 45687, 48351, 59531~
## $ oancf    <dbl> 18595, 37529, 50856, 53666, 59713, 81266, 65824, 63598, 77434~
## $ oiadp    <dbl> 18385, 33790, 55241, 48999, 52503, 71230, 59476, 61344, 70662~
## $ oibdp    <dbl> 19317, 35612, 58446, 55756, 60449, 81730, 69276, 70744, 81565~
## $ opiti    <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, N~
## $ pi       <dbl> 18540, 34205, 55763, 50155, 53483, 72515, 61372, 64089, 72903~
## $ ppent    <dbl> 4768, 7777, 15452, 16597, 20624, 22471, 27010, 33783, 41304, ~
```

```
## $ re       <dbl> 37123, 63284, 101788, 103785, 88234, 91939, 96998, 98180, 669~
## $ rect     <dbl> 9924, 11717, 18692, 20641, 27219, 30343, 29299, 35673, 48995,~
## $ revt     <dbl> 65225, 108249, 156508, 170910, 182795, 233715, 215091, 229234~
## $ sale     <dbl> 65225, 108249, 156508, 170910, 182795, 233715, 215091, 229234~
## $ seq      <dbl> 47791, 76615, 118210, 123549, 111547, 119355, 128249, 134047,~
## $ xad      <dbl> 691, 933, 1000, 1100, 1200, 1800, NA, NA, NA, NA, NA, 1337, 1~
## $ xlr      <dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, NA, N~
## $ xrd      <dbl> 1782, 2429, 3381, 4475, 6041, 8067, 10045, 11581, 14236, 1621~
## $ xsga     <dbl> 7299, 10028, 13421, 15305, 18034, 22396, 24239, 26842, 30941,~
## $ exchg    <dbl> 14, 14, 14, 14, 14, 14, 14, 14, 14, 14, 14, 11, 11, 11, 11, 1~
## $ cik      <chr> "0000320193", "0000320193", "0000320193", "0000320193", "0000~
## $ costat   <chr> "A", "A", "A", "A", "A", "A", "A", "A", "A", "A", "A", "A", "~
## $ naicsh   <dbl> 334111, 334111, 334220, 334220, 334220, 334220, 334220, 33422~
## $ sich     <dbl> 3571, 3571, 3663, 3663, 3663, 3663, 3663, 3663, 3663, 3663, 3~
## $ prcc_c   <dbl> 322.5600, 405.0000, 532.1729, 561.0200, 110.3800, 105.2600, 1~
## $ mkvalt   <dbl> 259906.5, 354351.9, 626550.4, 428699.8, 591015.7, 615336.5, 6~
## $ prcc_f   <dbl> 283.750, 381.320, 667.105, 476.750, 100.750, 110.300, 113.050~
## $ add1     <chr> "One Apple Park Way", "One Apple Park Way", "One Apple Park W~
## $ add2     <chr> "", "", "", "", "", "", "", "", "", "", "", "", "", "", "", "~
## $ add3     <chr> "", "", "", "", "", "", "", "", "", "", "", "", "", "", "", "~
## $ add4     <chr> "", "", "", "", "", "", "", "", "", "", "", "", "", "", "", "~
## $ addzip   <chr> "95014", "95014", "95014", "95014", "95014", "95014", "95014"~
## $ busdesc  <chr> "Apple Inc. designs, manufactures, and markets smartphones, p~
## $ city     <chr> "Cupertino", "Cupertino", "Cupertino", "Cupertino", "Cupertin~
## $ conml    <chr> "Apple Inc", "Apple Inc", "Apple Inc", "Apple Inc", "Apple In~
## $ county   <chr> "", "", "", "", "", "", "", "", "", "", "", "", "", "", "", "~
## $ ggroup   <chr> "4520", "4520", "4520", "4520", "4520", "4520", "4520", "4520~
## $ gind     <chr> "452020", "452020", "452020", "452020", "452020", "452020", "~
## $ gsector  <chr> "45", "45", "45", "45", "45", "45", "45", "45", "45", "45", "~
## $ gsubind  <chr> "45202030", "45202030", "45202030", "45202030", "45202030", "~
## $ naics    <chr> "334220", "334220", "334220", "334220", "334220", "334220", "~
## $ sic      <chr> "3663", "3663", "3663", "3663", "3663", "3663", "3663", "3663~
## $ state    <chr> "CA", "CA", "CA", "CA", "CA", "CA", "CA", "CA", "CA", "CA", "~
## $ ipodate  <date> 1980-12-12, 1980-12-12, 1980-12-12, 1980-12-12, 1980-12-12, ~
```

```
# use desribe instead of summary for different sets of data
psych::describe(d1)
```

```
## Warning in FUN(newX[, i], ...): no non-missing arguments to min; returning Inf

## Warning in FUN(newX[, i], ...): no non-missing arguments to min; returning Inf

## Warning in FUN(newX[, i], ...): no non-missing arguments to min; returning Inf

## Warning in FUN(newX[, i], ...): no non-missing arguments to min; returning Inf
## Warning in FUN(newX[, i], ...): no non-missing arguments to max; returning -Inf

## Warning in FUN(newX[, i], ...): no non-missing arguments to max; returning -Inf

## Warning in FUN(newX[, i], ...): no non-missing arguments to max; returning -Inf

## Warning in FUN(newX[, i], ...): no non-missing arguments to max; returning -Inf
##          vars   n      mean        sd    median   trimmed       mad       min
## gvkey*      1 109      5.50      2.90      6.00      5.49      4.45      1.00
```

```
## datadate    2 109       NaN        NA        NA       NaN        NA       Inf
## fyear       3 109   2015.15      3.17   2015.00   2015.15      4.45   2010.00
## indfmt*     4 109      1.00      0.00      1.00      1.00      0.00      1.00
## consol*     5 109      1.00      0.00      1.00      1.00      0.00      1.00
## popsrc*     6 109      1.00      0.00      1.00      1.00      0.00      1.00
## datafmt*    7 109      1.00      0.00      1.00      1.00      0.00      1.00
## tic*        8 109      5.44      2.86      5.00      5.43      2.97      1.00
## cusip*      9 109      5.44      2.86      5.00      5.43      2.97      1.00
## conm*      10 109      5.44      2.86      5.00      5.43      2.97      1.00
## curcd*     11 109      1.00      0.00      1.00      1.00      0.00      1.00
## fyr        12 109     10.73      2.05     12.00     11.12      0.00      6.00
## at         13 107  90215.70  98348.32  48574.00  73310.75  62629.47    386.08
## capx       14 107   4168.52   5879.03   1811.00   3076.47   2427.10     11.55
## che        15 107  26540.61  34876.65  11449.00  19307.64  12789.21    173.16
## cogs       16 107  30324.26  43719.39   9162.00  20690.33  12821.22     36.51
## csho       17 105   2152.92   2879.15    965.73   1588.57    794.19     52.78
## cshpri     18 107   2180.52   2890.26   1004.27   1623.20    848.62     52.53
## cshr       19 104     60.80    133.02      4.00     21.65      5.25      0.00
## dlc        20 107   3285.13   4782.79    995.00   2336.68   1475.19      0.00
## dltt       21 106  18930.22  27012.28   7976.74  13270.58  11655.08      0.00
## dvc        22 107   2881.34   4576.49      0.00   1953.42      0.00      0.00
## dvt        23 107   2881.34   4576.49      0.00   1953.42      0.00      0.00
## ebit       24 107  13679.04  19175.77   4066.00   9721.98   6245.95  -1565.09
## ebitda     25 107  16984.91  22207.49   5943.00  12612.85   8744.02   -524.94
## emp        26 104    118.02    193.63     36.29     76.85     48.94      0.90
## gdwl       27 104  10107.24  13811.27   3946.50   7359.15   5851.08      0.00
## lct        28 107  25830.03  29683.88  13283.00  20659.39  18827.51     47.74
## ni         29 107  10662.13  15647.77   3033.00   7442.87   5084.15  -4864.00
## oancf      30 107  16887.05  21898.33   5854.00  12830.68   8862.73  -2887.32
## oiadp      31 107  13679.04  19175.77   4066.00   9721.98   6245.95  -1565.09
## oibdp      32 107  16984.91  22207.49   5943.00  12612.85   8744.02   -524.94
## opiti      33   0       NaN        NA        NA       NaN        NA       Inf
## pi         34 107  13622.23  19556.56   4034.00   9523.96   6357.27  -2209.03
## ppent      35 107  14052.15  21778.34   5194.74   9543.30   7426.59     61.98
## re         36 105  26645.69  39894.00   5491.00  19589.47  11312.30 -16681.00
## rect       37 107  10206.62  12597.38   3151.00   8365.40   4612.61      0.00
## revt       38 107  64003.36  77795.08  24996.06  49179.64  34219.81    106.31
## sale       39 107  64003.36  77795.08  24996.06  49179.64  34219.81    106.31
## seq        40 107  34610.73  39353.73  16885.00  28362.94  21551.07    124.70
## xad        41  88   1345.47   1982.11    966.50    933.57   1012.62      2.90
## xlr        42   0       NaN        NA        NA       NaN        NA       Inf
## xrd        43 107   6104.56   7478.37   4475.00   4722.77   5371.31     80.18
## xsga       44 107  16694.19  20530.68   7767.00  13334.16   9984.78    138.32
## exchg      45 109     13.42      1.19     14.00     13.63      0.00     11.00
## cik*       46 109      5.40      2.85      5.00      5.38      2.97      1.00
## costat*    47 109      1.00      0.00      1.00      1.00      0.00      1.00
## naicsh     48 107 457274.50  84831.06 511210.00 462163.21  31164.25 334111.00
## sich       49 107   6135.06   1713.58   7370.00   6225.23    698.30   3571.00
## prcc_c     50 100    240.74    413.55    131.89    153.47    114.48     16.30
## mkvalt     51 101 297962.46 400130.90 133096.08 212832.14 157734.60   2527.40
## prcc_f     52 101    239.07    412.39    125.88    151.85    115.09     16.30
## add1*      53 109      5.58      2.89      6.00      5.60      4.45      1.00
## add2*      54 109      1.00      0.00      1.00      1.00      0.00      1.00
## add3*      55 109      1.00      0.00      1.00      1.00      0.00      1.00
```

```
## add4*      56 109      1.00      0.00      1.00      1.00      0.00      1.00
## addzip*    57 109      5.52      2.90      6.00      5.53      4.45      1.00
## busdesc*   58 109      5.44      2.86      5.00      5.43      2.97      1.00
## city*      59 109      5.45      2.87      5.00      5.44      2.97      1.00
## conml*     60 109      5.44      2.86      5.00      5.43      2.97      1.00
## county*    61 109      1.00      0.00      1.00      1.00      0.00      1.00
## ggroup*    62 109      3.88      1.70      3.00      3.97      1.48      1.00
## gind*      63 109      4.68      2.36      4.00      4.72      2.97      1.00
## gsector*   64 109      2.09      0.70      2.00      2.11      0.00      1.00
## gsubind*   65 109      5.38      2.73      5.00      5.46      2.97      1.00
## naics*     66 109      4.97      2.29      5.00      5.08      2.97      1.00
## sic*       67 109      4.59      2.07      5.00      4.61      1.48      1.00
## state*     68 109      1.52      0.82      1.00      1.42      0.00      1.00
## ipodate    69  88       NaN        NA        NA       NaN        NA       Inf
##                 max      range  skew kurtosis       se
## gvkey*        10.00       9.00  0.00    -1.28     0.28
## datadate       -Inf       -Inf    NA       NA       NA
## fyear       2021.00      11.00  0.00    -1.22     0.30
## indfmt*        1.00       0.00   NaN      NaN     0.00
## consol*        1.00       0.00   NaN      NaN     0.00
## popsrc*        1.00       0.00   NaN      NaN     0.00
## datafmt*       1.00       0.00   NaN      NaN     0.00
## tic*          10.00       9.00  0.02    -1.24     0.27
## cusip*        10.00       9.00  0.02    -1.24     0.27
## conm*         10.00       9.00  0.02    -1.24     0.27
## curcd*         1.00       0.00   NaN      NaN     0.00
## fyr           12.00       6.00 -1.31     0.31     0.20
## at        375319.00  374932.92  1.32     0.78  9507.69
## capx       40140.00   40128.45  2.81    11.74   568.35
## che       136527.00  136353.85  1.79     2.33  3371.65
## cogs      217107.00  217070.49  2.01     3.68  4226.51
## csho       16976.76   16923.98  2.22     5.83   280.98
## cshpri     17352.12   17299.59  2.28     6.24   279.41
## cshr         523.55     523.55  2.46     4.68    13.04
## dlc        20748.00   20748.00  1.65     2.03   462.37
## dltt      107049.00  107049.00  1.64     1.65  2623.66
## dvc        16871.00   16871.00  1.51     1.02   442.43
## dvt        16871.00   16871.00  1.51     1.02   442.43
## ebit       71230.00   72795.09  1.61     1.66  1853.79
## ebitda     81730.00   82254.94  1.52     1.39  2146.88
## emp         1298.00    1297.10  3.14    13.05    18.99
## gdwl       59617.00   59617.00  1.67     2.20  1354.31
## lct       126385.00  126337.26  1.41     1.39  2869.65
## ni         61271.00   66135.00  1.71     2.12  1512.73
## oancf      81266.00   84153.32  1.44     1.10  2116.99
## oiadp      71230.00   72795.09  1.61     1.66  1853.79
## oibdp      81730.00   82254.94  1.52     1.39  2146.88
## opiti          -Inf       -Inf    NA       NA       NA
## pi         72903.00   75112.03  1.66     1.83  1890.60
## ppent     150667.00  150605.02  3.29    14.66  2105.39
## re        134358.00  151039.00  1.38     0.58  3893.26
## rect       48995.00   48995.00  1.13     0.07  1217.83
## revt      386064.00  385957.69  1.69     2.68  7520.73
## sale      386064.00  385957.69  1.69     2.68  7520.73
```

```
## seq       141988.00  141863.30  1.19     0.13  3804.47
## xad        11000.00   10997.10  3.25    11.83   211.29
## xlr            -Inf       -Inf    NA       NA       NA
## xrd        42740.00   42659.82  2.25     6.42   722.96
## xsga      129933.00  129794.68  2.59     9.62  1984.78
## exchg         14.00       3.00 -1.54     0.37     0.11
## cik*          10.00       9.00  0.04    -1.24     0.27
## costat*        1.00       0.00   NaN      NaN     0.00
## naicsh    541519.00  207408.00 -0.65    -1.44  8200.93
## sich        7841.00    4270.00 -0.63    -1.46   165.66
## prcc_c      3256.93    3240.63  4.88    28.78    41.36
## mkvalt   2036897.10 2034369.70  2.40     6.26 39814.51
## prcc_f      3256.93    3240.63  4.89    28.90    41.03
## add1*         10.00       9.00 -0.05    -1.26     0.28
## add2*          1.00       0.00   NaN      NaN     0.00
## add3*          1.00       0.00   NaN      NaN     0.00
## add4*          1.00       0.00   NaN      NaN     0.00
## addzip*       10.00       9.00 -0.01    -1.27     0.28
## busdesc*      10.00       9.00  0.02    -1.24     0.27
## city*         10.00       9.00  0.03    -1.23     0.27
## conml*        10.00       9.00  0.02    -1.24     0.27
## county*        1.00       0.00   NaN      NaN     0.00
## ggroup*        6.00       5.00 -0.07    -1.28     0.16
## gind*          8.00       7.00  0.05    -1.34     0.23
## gsector*       3.00       2.00 -0.12    -0.99     0.07
## gsubind*       9.00       8.00 -0.12    -1.33     0.26
## naics*         8.00       7.00 -0.37    -1.25     0.22
## sic*           8.00       7.00 -0.14    -0.87     0.20
## state*         3.00       2.00  1.06    -0.69     0.08
## ipodate        -Inf       -Inf    NA       NA       NA
```

```
table(d1$gvkey)
```

```
##
## 001690 006066 012141 018872 024616 024800 064768 147579 170617 184996
##     11     11     12     10     10     11     11     11     11     11
```

```
table(d1$conm)
```

```
##
##              AMAZON.COM INC                   APPLE INC
##                          11                          11
##               FACEBOOK INC INTL BUSINESS MACHINES CORP
##                          11                          11
##             MICROSOFT CORP                 NETFLIX INC
##                          12                          11
##         PAYPAL HOLDINGS INC                QUALCOMM INC
##                          10                          11
##                  TESLA INC                 TWITTER INC
##                          11                          10
```

```
count(d1, conm)
```

```
## # A tibble: 10 x 2
##    conm                          n
##    <chr>                     <int>
```

```
##  1 AMAZON.COM INC                 11
##  2 APPLE INC                      11
##  3 FACEBOOK INC                   11
##  4 INTL BUSINESS MACHINES CORP    11
##  5 MICROSOFT CORP                 12
##  6 NETFLIX INC                    11
##  7 PAYPAL HOLDINGS INC            10
##  8 QUALCOMM INC                   11
##  9 TESLA INC                      11
## 10 TWITTER INC                    10
```

Select()

```
d2 <- select(d1, conm, datadate, sale, xrd)
```

```
d2 <- select(d1, -gvkey)
```

```
d3 <- d1 %>%
  select(-gvkey) %>%
  head()
```

```
d4 <- head(select(d1, -gvkey))
```

```
identical(d3,d4)
```

```
## [1] TRUE
```

```
a <- 50

if (a >= 50) {
  print("the number is greater than or equal to 50")
  } else(print("the number is smaller than 50"))
```

```
## [1] "the number is greater than or equal to 50"
```