

Groups

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```
library(readxl)
financial <- read_excel("July 3.2022.xlsx")
library(tidyverse)

## -- Attaching packages ----- tidyverse 1.3.1 --

## v ggplot2 3.3.5      v purrr 0.3.4
## v tibble 3.1.6       v dplyr 1.0.9
## v tidyr 1.2.0        v stringr 1.4.0
## v readr 2.1.2        v forcats 0.5.1

## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()     masks stats::lag()

fin <- arrange(financial, desc(Value))
```

1. Overall Approach

Entity selection

First of all, we want to remove company that are doing bad in their operations. We will also want to remove companies that have a weak foundation, that is who might not have enough cash to pay their near term liabilities. As there are chances of recession, this is critical as we only want companies that can come out of this situation.

```
subset <- fin %>%
  filter(fin["Net Income"]>=0, fin["Net Cash Flow"]>=0,
         fin["Quick Ratio(CA/CL)"]>=0, !is.na(Value))
```

Comparison

Now, as we have removed companies that satisfy certain attributes, we do not need to view these attributes in our table. So, we will only select the other necessary columns.

```
sub1 <- select(subset,Stocks,Value,SUM,Area)
head(sub1)
```

```
## # A tibble: 6 x 4
##   Stocks Value   SUM Area
##   <chr> <dbl> <dbl> <chr>
## 1 ZIM    116.     7 Transport
## 2 C      112.     2 Finance
## 3 F      34.6     0 Auto
## 4 SHEL   16.2     6 Oil
## 5 ET     12.3     6 Oil
## 6 MRO    11.6     1 Oil
```

Here, we will arrange the cleaned dataframe in order of their descending values and select stocks by looking at their “SUM” and “Value”. Similarly, we will group these by Area as we want to diversify our selection.

```
sub2 <- group_by(sub1,Area)
group_split(sub2)
```

```
## <list_of<
##   tbl_df<
##     Stocks: character
##     Value  : double
##     SUM    : double
##     Area   : character
##   >
## >[9]>
## [[1]]
## # A tibble: 1 x 4
##   Stocks Value   SUM Area
##   <chr> <dbl> <dbl> <chr>
## 1 NKE   0.0434     4 Apparel
##
## [[2]]
## # A tibble: 2 x 4
##   Stocks Value   SUM Area
##   <chr> <dbl> <dbl> <chr>
## 1 F     34.6     0 Auto
## 2 TSLA  0.00355    6 Auto
##
## [[3]]
## # A tibble: 3 x 4
##   Stocks Value   SUM Area
##   <chr> <dbl> <dbl> <chr>
## 1 BABA  0.992     4 China
## 2 TCEHY 0.958     7 China
## 3 PDD   0.0901    6 China
##
## [[4]]
## # A tibble: 2 x 4
##   Stocks Value   SUM Area
##   <chr> <dbl> <dbl> <chr>
```

```

## 1 AMD      1.09      7 Electronic
## 2 TSM      0.303     9 Electronic
##
## [[5]]
## # A tibble: 4 x 4
##   Stocks Value  SUM Area
##   <chr>  <dbl> <dbl> <chr>
## 1 C      112.      2 Finance
## 2 JPM     10.3      3 Finance
## 3 COIN     9.55      6 Finance
## 4 MS       7.93      4 Finance
##
## [[6]]
## # A tibble: 2 x 4
##   Stocks Value  SUM Area
##   <chr>  <dbl> <dbl> <chr>
## 1 MRNA   2.20      6 Health
## 2 PFE    0.936     7 Health
##
## [[7]]
## # A tibble: 5 x 4
##   Stocks Value  SUM Area
##   <chr>  <dbl> <dbl> <chr>
## 1 SHEL   16.2      6 Oil
## 2 ET     12.3      6 Oil
## 3 MRO    11.6      1 Oil
## 4 COP     3.45      7 Oil
## 5 OXY     1.19      1 Oil
##
## [[8]]
## # A tibble: 4 x 4
##   Stocks Value  SUM Area
##   <chr>  <dbl> <dbl> <chr>
## 1 META   0.858      7 Tech
## 2 GOOGL  0.215      6 Tech
## 3 ZM     0.178      7 Tech
## 4 ROKU   0.0914     6 Tech
##
## [[9]]
## # A tibble: 2 x 4
##   Stocks Value  SUM Area
##   <chr>  <dbl> <dbl> <chr>
## 1 ZIM    116.      7 Transport
## 2 LUV     0.884     3 Transport

```

```
group_keys(sub2)
```

```

## # A tibble: 9 x 1
##   Area
##   <chr>
## 1 Apparel
## 2 Auto
## 3 China
## 4 Electronic

```

```
## 5 Finance
## 6 Health
## 7 Oil
## 8 Tech
## 9 Transport
```

Candidates

Looking at the grouped_table, we have the following candidates: F, TCEHY, BABA, AMD, TSM, C, COIN, MRNA, PFE, SHEL, ET, META, GOOGL, ZIM.

We'll look at the 'Other Informations' column.

```
final <- fin %>%
  filter(Stocks %in% c("F","TCEHY","BABA","AMD","TSM","C","COIN","MRNA","PFE","SHEL","ET","META","GOOGL","ZIM"))
  select(Stocks, `Other Informations`)
final
```

```
## # A tibble: 14 x 2
##   Stocks 'Other Informations'
##   <chr> <chr>
## 1 ZIM   Be cautious if it can sustain the growth.
## 2 C     Good dividends.Good Volume
## 3 F     The technical analysis looks good.
## 4 SHEL  High dividends. Good Volume.
## 5 ET    Growth stock with good dividends.
## 6 COIN  Fairly young company. Could have huge potential because of crypto.
## 7 MRNA  Just started to produce profits; Resistance level at 180.
## 8 AMD   Good financials , and good volume. Need to see if it can hold current~
## 9 BABA  Less income in 2021; Huge growth, but look at further earnings. Good ~
## 10 TCEHY Good volume.
## 11 PFE   Good Volume. Buy if crosses the 54 level.
## 12 META Undervalued ?
## 13 TSM   Constant growth in each department.
## 14 GOOGL Excellent financials, one of the best among Tech , but low volume
```

We can select stocks to buy from the refined list after considering the details given in the 'Other Informations' column.

2.Value Approach

While refining the data, we selected the stocks with good overall financials. We could have dropped stocks which were undervalued but had bad financial situation in one attribute. So, here we will filter and look at those stocks that might have great value.

```
sub3 <- fin %>%
  filter(Value >= 5) %>%
  select(Stocks,Value,SUM,PB,Area)
```

Let's only filter the stocks that were not in the final refined data of first part.

```
sub4 <- filter(sub3,!(Stocks %in% final$Stocks))
sub4
```

```
## # A tibble: 10 x 5
##   Stocks Value    SUM    PB Area
##   <chr>   <dbl> <dbl> <dbl> <chr>
## 1 AAWW   95.8     4  0.62 Transport
## 2 COF    61.7     2  0.75 Finance
## 3 GS     28.3     2  0.95 Finance
## 4 GHG    14.8     4  0.9  Transport
## 5 BAC    14.8    -1  1.04 Finance
## 6 MRO    11.6     1  1.3  Oil
## 7 Intel  11.1     6  1.47 Electronic
## 8 JPM    10.3     3  1.3  Finance
## 9 MS      7.93     4  1.38 Finance
## 10 ALK    7.14     3  1.42 Transport
```

3. Utility approach

```
sub5 <- fin %>%
  filter(SUM >= 7) %>%
  select(Stocks,Value,SUM,PB,Area)
```

```
sub6 <- filter (sub5,!(Stocks %in% final$Stocks | Stocks %in% sub4$Stocks))
sub6
```

```
## # A tibble: 2 x 5
##   Stocks Value    SUM    PB Area
##   <chr>   <dbl> <dbl> <dbl> <chr>
## 1 COP     3.45     7  2.19 Oil
## 2 ZM      0.178     7  5.58 Tech
```

4. Elimination

```
sub7 <- fin %>%
  filter(is.na(PB) | Value <= 1/10 | PB >=10)
sub7[,c("Stocks","Value","SUM","PB")]
```

```
## # A tibble: 11 x 4
##   Stocks    Value    SUM    PB
##   <chr>    <dbl> <dbl> <dbl>
## 1 ROKU    0.0914     6  4.28
## 2 PDD     0.0901     6  6.4
## 3 KO      0.0437     1 11.0
## 4 NKE      0.0434     4 11.1
## 5 AMZN     0.0367     0  8.69
```

##	6	AAPL	0.00554	0	34.4
##	7	TSLA	0.00355	6	21
##	8	BA	NA	-5	NA
##	9	SBUX	NA	4	NA
##	10	DOCU	NA	-1	36
##	11	<NA>	NA	0	NA