Lampiran Output Data

User

2022-07-15

#Script and output data of stock price determinant analysis

#handling missing data  
any(is.na(stock\_price))

## [1] TRUE

sum(is.na(stock\_price))

## [1] 204

colSums(is.na(stock\_price))

## no sector sub\_industry\_code sub\_industry   
## 0 0 0 0   
## code stock\_name harga\_saham Assets\_bIDR   
## 0 0 0 0   
## Liabilities\_bIDR Equity\_bIDR EPS\_IDR PER   
## 0 0 1 8   
## DER ROA ROE NPM   
## 5 82 82 26

stock\_price\_clean <- na.omit(stock\_price)  
any(is.na(stock\_price\_clean))

## [1] FALSE

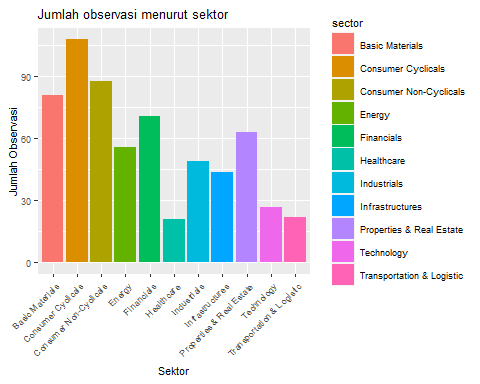
head(stock\_price\_clean)

## # A tibble: 6 × 16  
## no sector sub\_industry\_co… sub\_industry code stock\_name harga\_saham  
## <dbl> <chr> <chr> <chr> <chr> <chr> <dbl>  
## 1 1 Consumer Non… D232 Plantations… AALI Astra Agr… 9500  
## 2 3 Financials G412 General Ins… ABDA Asuransi … 5850  
## 3 4 Industrials C311 Multi-secto… ABMM ABM Inves… 1420  
## 4 5 Consumer Cyc… E743 Home Improv… ACES Ace Hardw… 1280  
## 5 6 Infrastructu… J211 Heavy Const… ACST PT Acset … 210  
## 6 7 Consumer Non… D212 Soft Drinks ADES Akasha Wi… 3290  
## # … with 9 more variables: Assets\_bIDR <dbl>, Liabilities\_bIDR <dbl>,  
## # Equity\_bIDR <dbl>, EPS\_IDR <dbl>, PER <dbl>, DER <dbl>, ROA <dbl>,  
## # ROE <dbl>, NPM <dbl>

#sample distribution by sector  
sector\_count <- table(stock\_price\_clean$sector)  
sector\_count

##   
## Basic Materials Consumer Cyclicals Consumer Non-Cyclicals   
## 81 108 88   
## Energy Financials Healthcare   
## 56 71 21   
## Industrials Infrastructures Properties & Real Estate   
## 49 44 63   
## Technology Transportation & Logistic   
## 27 22

ggplot(data = stock\_price\_clean) + geom\_bar(mapping = aes(x = sector, fill = sector)) + labs(title= "Jumlah observasi menurut sektor", x= "Sektor", y="Jumlah Observasi")+theme(text=element\_text(size=8),axis.text.x = element\_text(angle=45, hjust=1))



sector\_percent <-sector\_count / length(stock\_price\_clean$sector)  
sector\_percent

##   
## Basic Materials Consumer Cyclicals Consumer Non-Cyclicals   
## 0.12857143 0.17142857 0.13968254   
## Energy Financials Healthcare   
## 0.08888889 0.11269841 0.03333333   
## Industrials Infrastructures Properties & Real Estate   
## 0.07777778 0.06984127 0.10000000   
## Technology Transportation & Logistic   
## 0.04285714 0.03492063

#summary statistic  
summary(reg\_data)

## harga\_saham EPS\_IDR PER DER   
## Min. : 36.0 Min. : 0.12 Min. : 0.540 Min. : 0.010   
## 1st Qu.: 182.2 1st Qu.: 8.17 1st Qu.: 8.835 1st Qu.: 0.360   
## Median : 489.0 Median : 28.78 Median : 19.245 Median : 0.815   
## Mean : 1805.7 Mean : 184.17 Mean : 156.078 Mean : 2.068   
## 3rd Qu.: 1492.5 3rd Qu.: 95.32 3rd Qu.: 46.350 3rd Qu.: 1.670   
## Max. :49000.0 Max. :37407.13 Max. :28119.340 Max. :142.690   
## ROA ROE NPM Assets\_bIDR   
## Min. :0.01000 Min. : 0.0100 Min. : 0.010 Min. : 14.7   
## 1st Qu.:0.02000 1st Qu.: 0.0400 1st Qu.: 0.060 1st Qu.: 562.8   
## Median :0.04000 Median : 0.0900 Median : 0.150 Median : 1991.8   
## Mean :0.07192 Mean : 0.2059 Mean : 2.314 Mean : 20939.2   
## 3rd Qu.:0.09000 3rd Qu.: 0.1700 3rd Qu.: 0.360 3rd Qu.: 7570.3   
## Max. :1.41000 Max. :12.8600 Max. :853.070 Max. :1637950.2   
## Liabilities\_bIDR Equity\_bIDR Ln\_Liab   
## Min. : 0.3 Min. : 6.37 Min. :-1.308   
## 1st Qu.: 196.9 1st Qu.: 285.86 1st Qu.: 5.283   
## Median : 782.5 Median : 998.58 Median : 6.662   
## Mean : 14390.8 Mean : 6197.83 Mean : 6.657   
## 3rd Qu.: 3585.5 3rd Qu.: 3960.52 3rd Qu.: 8.185   
## Max. :1339489.5 Max. :280282.77 Max. :14.108

#regression  
regresion\_model1 <- lm(formula = harga\_saham ~ EPS\_IDR + PER + DER + ROA + ROE + NPM + Assets\_bIDR + Ln\_Liab + Equity\_bIDR, data = reg\_data)  
summary(regresion\_model1)

##   
## Call:  
## lm(formula = harga\_saham ~ EPS\_IDR + PER + DER + ROA + ROE +   
## NPM + Assets\_bIDR + Ln\_Liab + Equity\_bIDR, data = reg\_data)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -10210 -1279 -728 59 44371   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) -7.010e+02 5.176e+02 -1.354 0.176130   
## EPS\_IDR 1.010e+00 9.874e-02 10.232 < 2e-16 \*\*\*  
## PER 4.823e-02 1.113e-01 0.433 0.664914   
## DER -2.371e+01 3.687e+01 -0.643 0.520359   
## ROA 3.623e+03 1.759e+03 2.060 0.039816 \*   
## ROE -7.030e+00 4.422e+02 -0.016 0.987322   
## NPM -3.320e-01 4.387e+00 -0.076 0.939694   
## Assets\_bIDR -8.635e-03 2.892e-03 -2.986 0.002938 \*\*   
## Ln\_Liab 2.811e+02 7.434e+01 3.782 0.000171 \*\*\*  
## Equity\_bIDR 6.664e-02 1.629e-02 4.092 4.84e-05 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 3759 on 620 degrees of freedom  
## Multiple R-squared: 0.2262, Adjusted R-squared: 0.215   
## F-statistic: 20.14 on 9 and 620 DF, p-value: < 2.2e-16

regresion\_model2 <- lm(formula = harga\_saham ~ EPS\_IDR + PER + DER + ROA + ROE + NPM , data = reg\_data)  
summary(regresion\_model2)

##   
## Call:  
## lm(formula = harga\_saham ~ EPS\_IDR + PER + DER + ROA + ROE +   
## NPM, data = reg\_data)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -12417 -1395 -1130 -271 46300   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 1.461e+03 2.028e+02 7.203 1.7e-12 \*\*\*  
## EPS\_IDR 1.062e+00 1.027e-01 10.338 < 2e-16 \*\*\*  
## PER -3.311e-03 1.157e-01 -0.029 0.977   
## DER -6.013e+00 3.773e+01 -0.159 0.873   
## ROA 2.816e+03 1.828e+03 1.541 0.124   
## ROE -1.611e+02 4.577e+02 -0.352 0.725   
## NPM -3.180e+00 4.524e+00 -0.703 0.482   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 3921 on 623 degrees of freedom  
## Multiple R-squared: 0.1542, Adjusted R-squared: 0.1461   
## F-statistic: 18.93 on 6 and 623 DF, p-value: < 2.2e-16

#classic asumption  
#Normalitas  
ks.test(regresion\_model1$residuals, ecdf(regresion\_model1$residuals))

##   
## Asymptotic one-sample Kolmogorov-Smirnov test  
##   
## data: regresion\_model1$residuals  
## D = 0.0015873, p-value = 1  
## alternative hypothesis: two-sided

ks.test(regresion\_model2$residuals, ecdf(regresion\_model2$residuals))

##   
## Asymptotic one-sample Kolmogorov-Smirnov test  
##   
## data: regresion\_model2$residuals  
## D = 0.0015873, p-value = 1  
## alternative hypothesis: two-sided

#Multikolinieritas  
ols\_vif\_tol(regresion\_model1)

## Variables Tolerance VIF  
## 1 EPS\_IDR 0.9907492 1.009337  
## 2 PER 0.9912957 1.008781  
## 3 DER 0.2572945 3.886597  
## 4 ROA 0.7300526 1.369764  
## 5 ROE 0.2429449 4.116159  
## 6 NPM 0.9711008 1.029759  
## 7 Assets\_bIDR 0.2070973 4.828648  
## 8 Ln\_Liab 0.7079079 1.412613  
## 9 Equity\_bIDR 0.1887976 5.296677

ols\_vif\_tol(regresion\_model2)

## Variables Tolerance VIF  
## 1 EPS\_IDR 0.9956605 1.004358  
## 2 PER 0.9974540 1.002552  
## 3 DER 0.2672780 3.741423  
## 4 ROA 0.7355348 1.359555  
## 5 ROE 0.2466976 4.053545  
## 6 NPM 0.9932974 1.006748

#Heteroskedastisitas  
bptest(regresion\_model1)

##   
## studentized Breusch-Pagan test  
##   
## data: regresion\_model1  
## BP = 14.836, df = 9, p-value = 0.09553

bptest(regresion\_model2)

##   
## studentized Breusch-Pagan test  
##   
## data: regresion\_model2  
## BP = 8.4636, df = 6, p-value = 0.2061

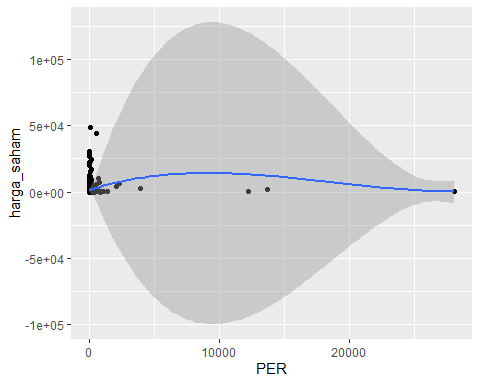
#regression in outlier treatment  
#identifying outliers  
ggplot(data = reg\_data, mapping=aes(x=EPS\_IDR, y=harga\_saham))+geom\_point(position = "jitter")+ geom\_smooth()

## `geom\_smooth()` using method = 'loess' and formula 'y ~ x'



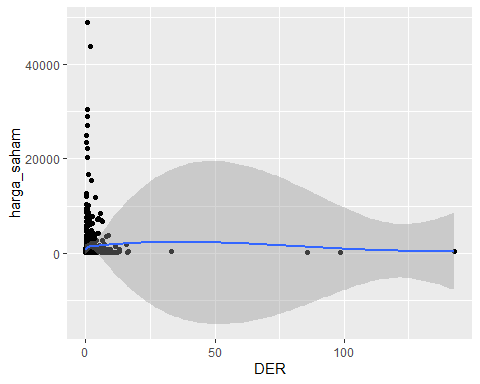
ggplot(data = reg\_data, mapping=aes(x=PER, y=harga\_saham))+geom\_point(position = "jitter")+ geom\_smooth()

## `geom\_smooth()` using method = 'loess' and formula 'y ~ x'



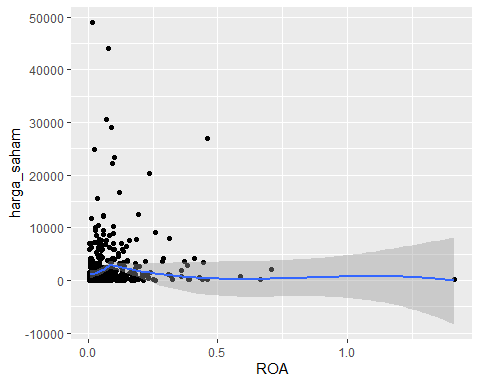
ggplot(data = reg\_data, mapping=aes(x=DER, y=harga\_saham))+geom\_point(position = "jitter")+ geom\_smooth()

## `geom\_smooth()` using method = 'loess' and formula 'y ~ x'



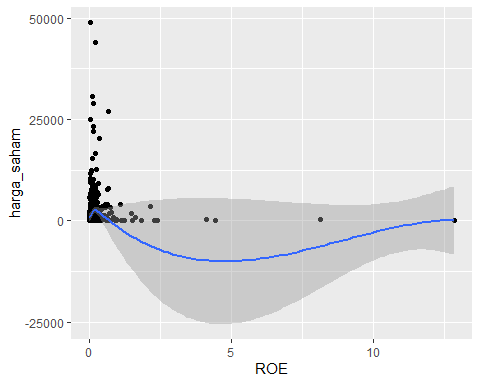
ggplot(data = reg\_data, mapping=aes(x=ROA, y=harga\_saham))+geom\_point(position = "jitter")+ geom\_smooth()

## `geom\_smooth()` using method = 'loess' and formula 'y ~ x'



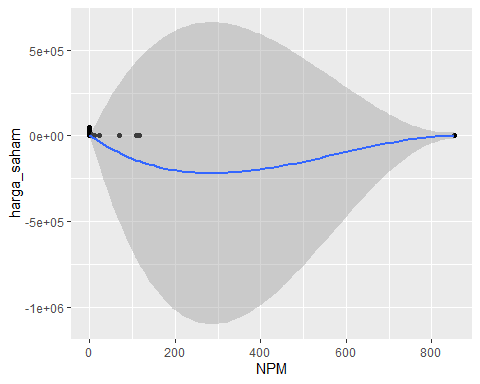
ggplot(data = reg\_data, mapping=aes(x=ROE, y=harga\_saham))+geom\_point(position = "jitter")+ geom\_smooth()

## `geom\_smooth()` using method = 'loess' and formula 'y ~ x'



ggplot(data = reg\_data, mapping=aes(x=NPM, y=harga\_saham))+geom\_point(position = "jitter")+ geom\_smooth()

## `geom\_smooth()` using method = 'loess' and formula 'y ~ x'



#import data without outlier, outliers have been eliminated  
regression\_data2 <- mutate(data\_nonoutlier, Ln\_Liab = Liabilities\_bIDR)  
str(regression\_data2)

#regression  
regresion\_model3 <- lm(formula = harga\_saham ~ EPS\_IDR + PER + DER + ROA + ROE + NPM + Assets\_bIDR + Ln\_Liab + Equity\_bIDR, data = regression\_data2)  
summary(regresion\_model3)

##   
## Call:  
## lm(formula = harga\_saham ~ EPS\_IDR + PER + DER + ROA + ROE +   
## NPM + Assets\_bIDR + Ln\_Liab + Equity\_bIDR, data = regression\_data2)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -11376 -1067 -813 -197 44847   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 766.85359 264.28799 2.902 0.00385 \*\*   
## EPS\_IDR 1.03403 0.09975 10.367 < 2e-16 \*\*\*  
## PER 4.29583 1.40609 3.055 0.00235 \*\*   
## DER 19.44702 95.05732 0.205 0.83797   
## ROA 4252.82397 2262.91747 1.879 0.06067 .   
## ROE -389.09371 861.57246 -0.452 0.65171   
## NPM -2.63472 4.38392 -0.601 0.54807   
## Assets\_bIDR 0.02189 0.02763 0.792 0.42861   
## Ln\_Liab -0.03417 0.02950 -1.158 0.24718   
## Equity\_bIDR 0.06164 0.02854 2.159 0.03121 \*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 3797 on 608 degrees of freedom  
## Multiple R-squared: 0.2225, Adjusted R-squared: 0.211   
## F-statistic: 19.33 on 9 and 608 DF, p-value: < 2.2e-16

regresion\_model4 <- lm(formula = harga\_saham ~ EPS\_IDR + PER + DER + ROA + ROE + NPM , data = regression\_data2)  
summary(regresion\_model4)

##   
## Call:  
## lm(formula = harga\_saham ~ EPS\_IDR + PER + DER + ROA + ROE +   
## NPM, data = regression\_data2)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -12574 -1310 -1051 -325 46400   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 1235.8232 261.0934 4.733 2.75e-06 \*\*\*  
## EPS\_IDR 1.0707 0.1031 10.386 < 2e-16 \*\*\*  
## PER 3.4992 1.4502 2.413 0.0161 \*   
## DER -8.9257 92.4713 -0.097 0.9231   
## ROA 3948.1602 2329.5401 1.695 0.0906 .   
## ROE -470.7790 876.5195 -0.537 0.5914   
## NPM -3.0947 4.5370 -0.682 0.4954   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 3930 on 611 degrees of freedom  
## Multiple R-squared: 0.163, Adjusted R-squared: 0.1547   
## F-statistic: 19.82 on 6 and 611 DF, p-value: < 2.2e-16

#classic asumption  
#Normalitas  
ks.test(regresion\_model3$residuals, ecdf(regresion\_model3$residuals))

##   
## Asymptotic one-sample Kolmogorov-Smirnov test  
##   
## data: regresion\_model3$residuals  
## D = 0.0016181, p-value = 1  
## alternative hypothesis: two-sided

ks.test(regresion\_model4$residuals, ecdf(regresion\_model4$residuals))

##   
## Asymptotic one-sample Kolmogorov-Smirnov test  
##   
## data: regresion\_model4$residuals  
## D = 0.0016181, p-value = 1  
## alternative hypothesis: two-sided

#Multikolinieritas  
ols\_vif\_tol(regresion\_model3)

## Variables Tolerance VIF  
## 1 EPS\_IDR 0.990759885 1.009326  
## 2 PER 0.957916864 1.043932  
## 3 DER 0.519311695 1.925626  
## 4 ROA 0.453474296 2.205197  
## 5 ROE 0.361097958 2.769332  
## 6 NPM 0.992067452 1.007996  
## 7 Assets\_bIDR 0.002315297 431.910074  
## 8 Ln\_Liab 0.003141853 318.283516  
## 9 Equity\_bIDR 0.062771561 15.930781

ols\_vif\_tol(regresion\_model4)

## Variables Tolerance VIF  
## 1 EPS\_IDR 0.9937327 1.006307  
## 2 PER 0.9647413 1.036547  
## 3 DER 0.5878970 1.700978  
## 4 ROA 0.4584225 2.181394  
## 5 ROE 0.3737677 2.675459  
## 6 NPM 0.9923039 1.007756

#Heteroskedastisitas  
bptest(regresion\_model3)

##   
## studentized Breusch-Pagan test  
##   
## data: regresion\_model3  
## BP = 23.507, df = 9, p-value = 0.005154

bptest(regresion\_model4)

##   
## studentized Breusch-Pagan test  
##   
## data: regresion\_model4  
## BP = 14.134, df = 6, p-value = 0.02817

##### terima kasih #####