

Seminar 2

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Load Libraries

```
library(tidyverse)
```

```
Warning: package 'ggplot2' was built under R version 4.3.3
```

```
Warning: package 'tidyr' was built under R version 4.3.3
```

```
Warning: package 'readr' was built under R version 4.3.3
```

```
Warning: package 'purrr' was built under R version 4.3.3
```

```
Warning: package 'dplyr' was built under R version 4.3.3
```

```
Warning: package 'stringr' was built under R version 4.3.3
```

```
Warning: package 'lubridate' was built under R version 4.3.3
```

```
-- Attaching core tidyverse packages ----- tidyverse 2.0.0 --
```

```
v dplyr     1.1.4      v readr     2.1.5  
vforcats   1.0.0      v stringr   1.5.1  
v ggplot2   3.5.1      v tibble    3.2.1  
v lubridate 1.9.3      v tidyr    1.3.1  
v purrr    1.0.2
```

```
-- Conflicts ----- tidyverse_conflicts() --
```

```
x dplyr::filter() masks stats::filter()
```

```
x dplyr::lag()   masks stats::lag()
```

```
i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to becom
```

```
library(car)
```

Warning: package 'car' was built under R version 4.3.2

Loading required package: carData

Attaching package: 'car'

The following object is masked from 'package:dplyr':

recode

The following object is masked from 'package:purrr':

some

```
library(MASS)
```

Attaching package: 'MASS'

The following object is masked from 'package:dplyr':

select

```
library(nnet)
library(dplyr)
```

Load and Clean Data

```
Financial_Data_2014 <- read.csv("~/Truman_Stat_520/Seminar/2014_Financial_Data.csv")
Financial_Data_2015 <- read.csv("~/Truman_Stat_520/Seminar/2015_Financial_Data.csv")
Financial_Data_2016 <- read.csv("~/Truman_Stat_520/Seminar/2016_Financial_Data.csv")
Financial_Data_2017 <- read.csv("~/Truman_Stat_520/Seminar/2017_Financial_Data.csv")
Financial_Data_2018 <- read.csv("~/Truman_Stat_520/Seminar/2018_Financial_Data.csv")
```

```

finance2014 <- Financial_Data_2014 %>%
  dplyr::select(-operatingCycle, -cashConversionCycle) %>%
  na.omit() %>%
  dplyr::select(where(is.numeric))
finance2015 <- Financial_Data_2015 %>%
  dplyr::select(-operatingCycle, -cashConversionCycle) %>%
  na.omit() %>%
  dplyr::select(where(is.numeric))
finance2016 <- Financial_Data_2016 %>%
  dplyr::select(-operatingCycle, -cashConversionCycle) %>%
  na.omit() %>%
  dplyr::select(where(is.numeric))
finance2017 <- Financial_Data_2017 %>%
  dplyr::select(-operatingCycle, -cashConversionCycle) %>%
  na.omit() %>%
  dplyr::select(where(is.numeric))
finance2018 <- Financial_Data_2018 %>%
  dplyr::select(-operatingCycle, -cashConversionCycle) %>%
  na.omit() %>%
  dplyr::select(where(is.numeric))

combined_finance <- rbind(finance2014, finance2015, finance2016, finance2017, finance2018)

```

Basic Example

```

basicmodel <- glm(Class ~ Dividend.per.Share + Effect.of.forex.changes.on.cash + priceToOp
summary(basicmodel)

```

Call:

```

glm(formula = Class ~ Dividend.per.Share + Effect.of.forex.changes.on.cash +
  priceToOperatingCashFlowsRatio + currentRatio + Average.Inventory,
  family = binomial(link = "logit"), data = combined_finance)

```

Coefficients:

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	6.965e-01	7.075e-02	9.844	< 2e-16 ***
Dividend.per.Share	2.337e-02	1.971e-02	1.186	0.2357
Effect.of.forex.changes.on.cash	-3.417e-09	8.121e-10	-4.208	2.58e-05 ***

```
priceToOperatingCashFlowsRatio -3.242e-03 1.313e-03 -2.470 0.0135 *
currentRatio -1.024e-01 2.603e-02 -3.935 8.30e-05 ***
Average.Inventory -6.261e-12 1.492e-11 -0.420 0.6747
---
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

(Dispersion parameter for binomial family taken to be 1)

```
Null deviance: 4527.2 on 3400 degrees of freedom
Residual deviance: 4468.2 on 3395 degrees of freedom
AIC: 4480.2
```

Number of Fisher Scoring iterations: 4

```
anova(basicmodel, test = 'Chisq')
```

Analysis of Deviance Table

Model: binomial, link: logit

Response: Class

Terms added sequentially (first to last)

	Df	Deviance	Resid. Df	Resid. Dev	Pr(>Chi)
NULL			3400	4527.2	
Dividend.per.Share	1	4.2865	3399	4522.9	0.0384162 *
Effect.of.forex.changes.on.cash	1	25.6568	3398	4497.3	4.079e-07 ***
priceToOperatingCashFlowsRatio	1	11.3354	3397	4485.9	0.0007604 ***
currentRatio	1	17.5271	3396	4468.4	2.832e-05 ***
Average.Inventory	1	0.1738	3395	4468.2	0.6767576

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```
predictions <- predict(basicmodel, type = "response")
```

```
predicted_class <- ifelse(predictions > 0.5, 1, 0)
```

```
table(predicted_class, combined_finance$Class)
```

```
predicted_class    0    1
                  0   52   39
                  1 1251 2059
```

```
accuracy <- sum(predicted_class == combined_finance$Class) / length(combined_finance$Class)
print(paste("Accuracy:", accuracy))
```

```
[1] "Accuracy: 0.620699794178183"
```

Complex Example

```
model <- glm(Class ~ ., data = combined_finance, family = binomial(link ='logit'))
```

```
Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred
```

```
summary(model)
```

Call:

```
glm(formula = Class ~ ., family = binomial(link = "logit"), data = combined_finance)
```

Coefficients: (27 not defined because of singularities)

	Estimate	Std. Error	z value
(Intercept)	2.333e+01	1.953e+01	1.195
Revenue	1.355e-07	1.580e-07	0.858
Revenue.Growth	-7.000e-01	3.768e-01	-1.858
Cost.of.Revenue	-1.356e-07	1.580e-07	-0.858
Gross.Profit	-1.255e-07	1.287e-07	-0.975
R.D.Expenses	-1.692e-10	1.195e-10	-1.416
SG.A.Expense	6.354e-11	5.952e-11	1.068
Operating.Expenses	-1.010e-08	4.010e-08	-0.252
Operating.Income	-9.514e-09	4.011e-08	-0.237
Interest.Expense	7.047e-09	5.755e-08	0.122
Earnings.before.Tax	8.535e-09	6.025e-08	0.142
Income.Tax.Expense	-7.202e-10	2.174e-08	-0.033
Net.Income...Non.Controlling.int	-3.749e-08	9.645e-08	-0.389

Net.Income...Discontinued.ops	-5.847e-10	2.736e-10	-2.137
Net.Income	-7.541e-08	1.126e-07	-0.670
Preferred.Dividends	3.680e-08	5.622e-08	0.654
Net.Income.Com	3.865e-08	5.611e-08	0.689
EPS	-1.596e-01	3.506e-01	-0.455
EPS.Diluted	-3.918e-02	2.709e-01	-0.145
Weighted.Average.Shs.Out	-2.698e-09	3.240e-09	-0.833
Weighted.Average.Shs.Out..Dil.	3.137e-09	3.201e-09	0.980
Dividend.per.Share	8.722e-02	4.169e-02	2.092
Gross.Margin	1.355e+02	7.063e+01	1.919
EBITDA.Margin	-1.512e+00	1.717e+00	-0.880
EBIT.Margin	-1.792e+02	1.319e+02	-1.358
Profit.Margin	3.162e+00	5.150e+00	0.614
Free.Cash.Flow.margin	2.048e+02	1.643e+02	1.246
EBITDA	-5.637e-07	4.461e-07	-1.264
EBIT	5.555e-07	4.225e-07	1.315
Consolidated.Income	3.611e-08	9.645e-08	0.374
Earnings.Before.Tax.Margin	-2.670e+00	4.083e+00	-0.654
Net.Profit.Margin	-9.657e+00	3.594e+02	-0.027
Cash.and.cash.equivalents	5.327e-07	2.029e-06	0.263
Short.term.investments	6.287e-07	2.021e-06	0.311
Cash.and.short.term.investments	-5.104e-07	2.011e-06	-0.254
Receivables	-1.915e-09	1.880e-09	-1.019
Inventories	-1.408e-09	1.884e-09	-0.747
Total.current.assets	-3.080e-08	2.126e-08	-1.449
Property..Plant...Equipment.Net	2.209e-11	4.071e-11	0.543
Goodwill.and.Intangible.Assets	-3.103e-08	2.293e-08	-1.353
Long.term.investments	1.102e-08	2.359e-08	0.467
Tax.assets	-2.117e-10	1.366e-10	-1.549
Total.non.current.assets	6.447e-09	1.904e-08	0.339
Total.assets	2.447e-08	1.469e-08	1.666
Payables	1.221e-07	7.149e-08	1.708
Short.term.debt	-1.903e-08	3.502e-08	-0.543
Total.current.liabilities	-2.221e-07	1.669e-07	-1.331
Long.term.debt	-1.410e-07	9.364e-08	-1.506
Total.debt	1.173e-07	1.083e-07	1.083
Deferred.revenue	4.412e-11	7.424e-11	0.594
Tax.Liabilities	-3.601e-11	5.308e-11	-0.678
Deposit.Liabilities	-3.707e-12	5.124e-11	-0.072
Total.non.current.liabilities	-1.416e-08	3.667e-08	-0.386
Total.liabilities	5.403e-08	5.959e-08	0.907
Other.comprehensive.income	6.994e-11	5.515e-11	1.268
Retained.earnings..deficit.	-1.102e-11	1.028e-11	-1.072

Total.shareholders.equity	1.145e-10	1.180e-10	0.971
Investments	-1.107e-08	2.359e-08	-0.469
Net.Debt	3.241e-08	2.879e-08	1.126
Other.Assets	-1.452e-09	1.860e-09	-0.780
Other.Liabilities	1.220e-07	7.149e-08	1.706
Depreciation...Amortization	5.636e-07	4.461e-07	1.263
Stock_based.compensation	1.683e-09	7.245e-10	2.322
Operating.Cash.Flow	8.979e-09	2.032e-08	0.442
Capital.Expenditure	8.789e-09	2.032e-08	0.432
Acquisitions.and.disposals	7.185e-11	1.291e-10	0.557
Investment.purchases.and.sales	2.236e-10	1.310e-10	1.706
Investing.Cash.flow	3.396e-10	5.523e-10	0.615
Issuance..repayment..of.debt	7.219e-11	1.771e-10	0.408
Issuance..buybacks..of.shares	1.758e-10	1.804e-10	0.974
Dividend.payments	-4.723e-11	2.442e-10	-0.193
Financing.Cash.Flow	3.474e-10	5.687e-10	0.611
Effect.of.forex.changes.on.cash	-3.890e-09	1.214e-09	-3.205
Net.cash.flow...Change.in.cash	-5.649e-10	5.429e-10	-1.040
Free.Cash.Flow	-8.535e-09	2.032e-08	-0.420
Net.Cash.Marketcap	1.580e-01	2.382e-01	0.663
priceBookValueRatio	-5.627e-02	7.659e-02	-0.735
priceToBookRatio	-5.970e-05	4.885e-04	-0.122
priceToSalesRatio	-6.491e-02	3.028e-01	-0.214
priceEarningsRatio	-1.407e-04	5.107e-04	-0.275
priceToFreeCashFlowsRatio	9.621e-05	4.046e-04	0.238
priceToOperatingCashFlowsRatio	1.553e-02	1.791e-02	0.867
priceCashFlowRatio	-2.616e-02	1.613e-02	-1.621
priceEarningsToGrowthRatio	-4.988e-04	4.770e-04	-1.046
priceSalesRatio	1.376e-01	2.456e-01	0.560
dividendYield	-4.167e-01	6.465e-01	-0.645
enterpriseValueMultiple	7.031e-02	3.891e-02	1.807
priceFairValue	5.241e-02	7.590e-02	0.691
ebitperRevenue	1.844e+02	1.320e+02	1.397
ebtperEBIT	4.014e-01	4.975e-01	0.807
niperEBT	5.579e+00	6.548e+00	0.852
grossProfitMargin	-1.345e+02	7.064e+01	-1.904
operatingProfitMargin	NA	NA	NA
pretaxProfitMargin	-2.571e+00	1.107e+00	-2.322
netProfitMargin	4.802e+00	3.592e+02	0.013
effectiveTaxRate	5.661e+00	6.548e+00	0.865
returnOnAssets	8.069e-03	9.260e-03	0.871
returnOnEquity	9.925e-02	2.201e-01	0.451
returnOnCapitalEmployed	3.428e-01	3.798e-01	0.903

nIperEBT	NA	NA	NA
eBTperEBIT	NA	NA	NA
eBITperRevenue	NA	NA	NA
payablesTurnover	-1.658e-03	2.722e-03	-0.609
inventoryTurnover	-3.440e-04	4.630e-04	-0.743
fixedAssetTurnover	-2.204e-05	3.848e-04	-0.057
assetTurnover	5.412e-02	9.046e-02	0.598
currentRatio	-2.190e-02	8.324e-02	-0.263
quickRatio	-3.575e-02	1.150e-01	-0.311
cashRatio	1.745e-02	1.059e-01	0.165
daysOfSalesOutstanding	9.704e-04	7.896e-04	1.229
daysOfInventoryOutstanding	-6.156e-05	1.402e-03	-0.044
daysOfPayablesOutstanding	-4.063e-03	2.007e-03	-2.025
debtRatio	-1.012e+00	1.243e+00	-0.814
debtEquityRatio	-1.578e-02	4.641e-02	-0.340
longtermDebtToCapitalization	-1.801e+00	9.745e-01	-1.848
totalDebtToCapitalization	2.337e+00	1.344e+00	1.739
interestCoverage	-1.419e-04	1.817e-04	-0.781
cashFlowToDebtRatio	6.706e-04	6.657e-04	1.007
companyEquityMultiplier	6.280e-03	3.533e-02	0.178
operatingCashFlowPerShare	8.709e-03	3.806e-02	0.229
freeCashFlowPerShare	2.036e-02	3.635e-02	0.560
cashPerShare	-1.627e-02	9.797e-03	-1.661
payoutRatio	-2.385e-02	2.702e-02	-0.883
operatingCashFlowSalesRatio	-2.053e+02	1.643e+02	-1.249
freeCashFlowOperatingCashFlowRatio	-2.895e+01	2.476e+01	-1.169
cashFlowCoverageRatios	NA	NA	NA
shortTermCoverageRatios	1.570e-06	1.235e-05	0.127
capitalExpenditureCoverageRatios	-2.173e-03	5.857e-03	-0.371
dividendpaidAndCapexCoverageRatios	4.166e-04	6.042e-03	0.069
dividendPayoutRatio	2.899e-02	3.631e-02	0.798
Revenue.per.Share	-7.487e-04	9.101e-04	-0.823
Net.Income.per.Share	2.600e-01	2.216e-01	1.173
Operating.Cash.Flow.per.Share	NA	NA	NA
Free.Cash.Flow.per.Share	NA	NA	NA
Cash.per.Share	NA	NA	NA
Book.Value.per.Share	8.487e-02	6.026e-02	1.409
Tangible.Book.Value.per.Share	-4.270e-04	3.225e-03	-0.132
Shareholders.Equity.per.Share	-7.218e-02	5.901e-02	-1.223
Interest.Debt.per.Share	-2.838e-03	4.279e-03	-0.663
Market.Cap	-7.627e-08	6.756e-08	-1.129
Enterprise.Value	7.626e-08	6.756e-08	1.129
PE.ratio	NA	NA	NA

Price.to.Sales.Ratio	NA	NA	NA
POCF.ratio	NA	NA	NA
PFCF.ratio	NA	NA	NA
PB.ratio	NA	NA	NA
PTB.ratio	NA	NA	NA
EV.to.Sales	1.072e-01	1.991e-01	0.539
Enterprise.Value.over.EBITDA	-8.205e-02	4.255e-02	-1.928
EV.to.Operating.cash.flow	3.991e-03	7.109e-03	0.561
EV.to.Free.cash.flow	-2.355e-05	1.852e-04	-0.127
Earnings.Yield	2.641e-01	1.018e+00	0.259
Free.Cash.Flow.Yield	3.347e-01	2.672e-01	1.253
Debt.to.Equity	NA	NA	NA
Debt.to.Assets	NA	NA	NA
Net.Debt.to.EBITDA	3.451e-02	5.496e-02	0.628
Current.ratio	NA	NA	NA
Interest.Coverage	NA	NA	NA
Income.Quality	2.047e-03	2.064e-03	0.992
Dividend.Yield	-3.352e+00	1.547e+00	-2.166
Payout.Ratio	NA	NA	NA
SG.A.to.Revenue	-9.009e-01	8.430e-01	-1.069
R.D.to.Revenue	3.456e+00	1.453e+00	2.379
Intangibles.to.Total.Assets	9.284e-01	3.178e-01	2.921
Capex.to.Operating.Cash.Flow	-2.885e+01	2.476e+01	-1.165
Capex.to.Revenue	2.044e+02	1.643e+02	1.244
Capex.to.Depreciation	-9.098e-02	6.727e-02	-1.353
Stock.based.compensation.to.Revenue	-9.805e+00	4.989e+00	-1.965
Graham.Number	-1.290e-02	1.066e-02	-1.210
ROIC	NA	NA	NA
Return.on.Tangible.Assets	NA	NA	NA
Graham.Net.Net	-2.519e-01	1.785e-01	-1.411
Working.Capital	-1.083e-09	1.744e-09	-0.621
Tangible.Asset.Value	5.397e-08	5.540e-08	0.974
Net.Current.Asset.Value	3.974e-08	3.078e-08	1.291
Invested.Capital	-8.498e-08	7.658e-08	-1.110
Average.Receivables	4.539e-10	3.114e-10	1.458
Average.Payables	-2.691e-11	2.410e-10	-0.112
Average.Inventory	-7.533e-11	3.465e-10	-0.217
Days.Sales.Outstanding	NA	NA	NA
Days.Payables.Outstanding	NA	NA	NA
Days.of.Inventory.on.Hand	NA	NA	NA
Receivables.Turnover	-4.064e-04	4.096e-04	-0.992
Payables.Turnover	NA	NA	NA
Inventory.Turnover	NA	NA	NA

	NA	NA	NA
ROE			
Capex.per.Share	-1.846e-02	4.185e-02	-0.441
Gross.Profit.Growth	-1.890e-01	1.323e-01	-1.428
EBIT.Growth	-3.625e-05	6.685e-04	-0.054
Operating.Income.Growth	4.008e-03	4.608e-03	0.870
Net.Income.Growth	4.092e-03	4.050e-03	1.010
EPS.Growth	4.791e-02	1.085e-01	0.442
EPS.Diluted.Growth	-5.512e-02	1.101e-01	-0.501
Weighted.Average.Shares.Growth	7.962e-01	6.264e-01	1.271
Weighted.Average.Shares.Diluted.Growth	-1.719e-01	2.572e-01	-0.668
Dividends.per.Share.Growth	-5.717e-03	1.699e-02	-0.337
Operating.Cash.Flow.growth	1.166e-02	1.222e-02	0.954
Free.Cash.Flow.growth	3.356e-03	2.831e-03	1.185
Y10.Revenue.Growth..per.Share.	-2.625e+00	6.819e-01	-3.849
Y5.Revenue.Growth..per.Share.	2.355e-01	6.727e-01	0.350
Y3.Revenue.Growth..per.Share.	1.632e+00	5.977e-01	2.730
Y10.Operating.CF.Growth..per.Share.	1.604e+00	5.170e-01	3.103
Y5.Operating.CF.Growth..per.Share.	1.359e-01	2.849e-01	0.477
Y3.Operating.CF.Growth..per.Share.	-7.634e-02	1.667e-01	-0.458
Y10.Net.Income.Growth..per.Share.	6.184e-01	4.650e-01	1.330
Y5.Net.Income.Growth..per.Share.	-2.460e-01	2.101e-01	-1.171
Y3.Net.Income.Growth..per.Share.	-7.245e-02	9.359e-02	-0.774
Y10.Shareholders.Equity.Growth..per.Share.	7.433e-01	5.893e-01	1.261
Y5.Shareholders.Equity.Growth..per.Share.	-1.307e+00	4.066e-01	-3.215
Y3.Shareholders.Equity.Growth..per.Share.	2.855e-01	2.565e-01	1.113
Y10.Dividend.per.Share.Growth..per.Share.	1.839e-01	2.180e-01	0.844
Y5.Dividend.per.Share.Growth..per.Share.	2.389e-01	2.356e-01	1.014
Y3.Dividend.per.Share.Growth..per.Share.	2.511e-01	2.030e-01	1.237
Receivables.growth	-1.176e-01	9.295e-02	-1.266
Inventory.Growth	-1.202e-01	1.262e-01	-0.952
Asset.Growth	-3.671e-02	1.985e-01	-0.185
Book.Value.per.Share.Growth	9.839e-04	1.972e-02	0.050
Debt.Growth	-9.234e-04	1.348e-03	-0.685
R.D.Expense.Growth	-2.620e-01	2.890e-01	-0.906
SG.A.Expenses.Growth	-1.889e-01	3.290e-01	-0.574
Pr(> z)			
(Intercept)	0.232232		
Revenue	0.390832		
Revenue.Growth	0.063199	.	
Cost.of.Revenue	0.390771		
Gross.Profit	0.329355		
R.D.Expenses	0.156911		
SG.A.Expense	0.285717		

Operating.Expenses	0.801183
Operating.Income	0.812473
Interest.Expense	0.902541
Earnings.before.Tax	0.887346
Income.Tax.Expense	0.973573
Net.Income...Non.Controlling.int	0.697485
Net.Income...Discontinued.ops	0.032623 *
Net.Income	0.502901
Preferred.Dividends	0.512813
Net.Income.Com	0.490983
EPS	0.648911
EPS.Diluted	0.885005
Weighted.Average.Shs.Out	0.405125
Weighted.Average.Shs.Out..Dil.	0.327042
Dividend.per.Share	0.036436 *
Gross.Margin	0.055021 .
EBITDA.Margin	0.378619
EBIT.Margin	0.174505
Profit.Margin	0.539284
Free.Cash.Flow.margin	0.212697
EBITDA	0.206345
EBIT	0.188610
Consolidated.Income	0.708133
Earnings.Before.Tax.Margin	0.513069
Net.Profit.Margin	0.978564
Cash.and.cash.equivalents	0.792858
Short.term.investments	0.755756
Cash.and.short.term.investments	0.799644
Receivables	0.308355
Inventories	0.454945
Total.current.assets	0.147350
Property..Plant...Equipment.Net	0.587428
Goodwill.and.Intangible.Assets	0.176041
Long.term.investments	0.640547
Tax.assets	0.121343
Total.non.current.assets	0.734849
Total.assets	0.095734 .
Payables	0.087660 .
Short.term.debt	0.586847
Total.current.liabilities	0.183256
Long.term.debt	0.132109
Total.debt	0.278650
Deferred.revenue	0.552290

Tax.Liabilities	0.497501
Deposit.Liabilities	0.942330
Total.non.current.liabilities	0.699306
Total.liabilities	0.364569
Other.comprehensive.income	0.204784
Retained.earnings..deficit.	0.283826
Total.shareholders.equity	0.331756
Investments	0.639044
Net.Debt	0.260310
Other.Assets	0.435246
Other.Liabilities	0.088013 .
Depreciation...Amortization	0.206464
Stock.based.compensation	0.020209 *
Operating.Cash.Flow	0.658625
Capital.Expenditure	0.665434
Acquisitions.and.disposals	0.577781
Investment.purchases.and.sales	0.087919 .
Investing.Cash.flow	0.538640
Issuance..repayment..of.debt	0.683601
Issuance..buybacks..of.shares	0.329823
Dividend.payments	0.846638
Financing.Cash.Flow	0.541247
Effect.of.forex.changes.on.cash	0.001349 **
Net.cash.flow...Change.in.cash	0.298155
Free.Cash.Flow	0.674524
Net.Cash.Marketcap	0.507122
priceBookValueRatio	0.462561
priceToBookRatio	0.902736
priceToSalesRatio	0.830245
priceEarningsRatio	0.782960
priceToFreeCashFlowsRatio	0.812064
priceToOperatingCashFlowsRatio	0.385955
priceCashFlowRatio	0.104925
priceEarningsToGrowthRatio	0.295727
priceSalesRatio	0.575260
dividendYield	0.519245
enterpriseValueMultiple	0.070746 .
priceFairValue	0.489862
ebitperRevenue	0.162494
ebtperEBIT	0.419757
niperEBT	0.394206
grossProfitMargin	0.056925 .
operatingProfitMargin	NA

pretaxProfitMargin	0.020208 *
netProfitMargin	0.989335
effectiveTaxRate	0.387280
returnOnAssets	0.383557
returnOnEquity	0.652082
returnOnCapitalEmployed	0.366647
nIperEBT	NA
eBTperEBIT	NA
eBITperRevenue	NA
payablesTurnover	0.542386
inventoryTurnover	0.457507
fixedAssetTurnover	0.954332
assetTurnover	0.549618
currentRatio	0.792439
quickRatio	0.755978
cashRatio	0.869046
daysOfSalesOutstanding	0.219072
daysOfInventoryOutstanding	0.964974
daysOfPayablesOutstanding	0.042900 *
debtRatio	0.415727
debtEquityRatio	0.733886
longtermDebtToCapitalization	0.064632 .
totalDebtToCapitalization	0.082006 .
interestCoverage	0.434753
cashFlowToDebtRatio	0.313774
companyEquityMultiplier	0.858903
operatingCashFlowPerShare	0.818977
freeCashFlowPerShare	0.575383
cashPerShare	0.096804 .
payoutRatio	0.377389
operatingCashFlowSalesRatio	0.211572
freeCashFlowOperatingCashFlowRatio	0.242344
cashFlowCoverageRatios	NA
shortTermCoverageRatios	0.898864
capitalExpenditureCoverageRatios	0.710641
dividendpaidAndCapexCoverageRatios	0.945027
dividendPayoutRatio	0.424634
Revenue.per.Share	0.410711
Net.Income.per.Share	0.240660
Operating.Cash.Flow.per.Share	NA
Free.Cash.Flow.per.Share	NA
Cash.per.Share	NA
Book.Value.per.Share	0.158962

Tangible.Book.Value.per.Share	0.894652
Shareholders.Equity.per.Share	0.221227
Interest.Debt.per.Share	0.507175
Market.Cap	0.258903
Enterprise.Value	0.258968
PE.ratio	NA
Price.to.Sales.Ratio	NA
POCF.ratio	NA
PFCF.ratio	NA
PB.ratio	NA
PTB.ratio	NA
EV.to.Sales	0.590079
Enterprise.Value.over.EBITDA	0.053798 .
EV.to.Operating.cash.flow	0.574570
EV.to.Free.cash.flow	0.898839
Earnings.Yield	0.795297
Free.Cash.Flow.Yield	0.210372
Debt.to.Equity	NA
Debt.to.Assets	NA
Net.Debt.to.EBITDA	0.530107
Current.ratio	NA
Interest.Coverage	NA
Income.Quality	0.321225
Dividend.Yield	0.030290 *
Payout.Ratio	NA
SG.A.to.Revenue	0.285225
R.D.to.Revenue	0.017355 *
Intangibles.to.Total.Assets	0.003487 **
Capex.to.Operating.Cash.Flow	0.243926
Capex.to.Revenue	0.213606
Capex.to.Depreciation	0.176206
Stock.based.compensation.to.Revenue	0.049395 *
Graham.Number	0.226293
ROIC	NA
Return.on.Tangible.Assets	NA
Graham.Net.Net	0.158151
Working.Capital	0.534674
Tangible.Asset.Value	0.329951
Net.Current.Asset.Value	0.196607
Invested.Capital	0.267117
Average.Receivables	0.144964
Average.Payables	0.911101
Average.Inventory	0.827865

Days.Sales.Outstanding	NA
Days.Payables.Outstanding	NA
Days.of.Inventory.on.Hand	NA
Receivables.Turnover	0.321158
Payables.Turnover	NA
Inventory.Turnover	NA
ROE	NA
Capex.per.Share	0.659202
Gross.Profit.Growth	0.153262
EBIT.Growth	0.956753
Operating.Income.Growth	0.384429
Net.Income.Growth	0.312379
EPS.Growth	0.658770
EPS.Diluted.Growth	0.616527
Weighted.Average.Shares.Growth	0.203722
Weighted.Average.Shares.Diluted.Growth	0.504067
Dividends.per.Share.Growth	0.736491
Operating.Cash.Flow.growth	0.340005
Free.Cash.Flow.growth	0.235838
Y10.Revenue.Growth..per.Share.	0.000119 ***
Y5.Revenue.Growth..per.Share.	0.726233
Y3.Revenue.Growth..per.Share.	0.006326 **
Y10.Operating.CF.Growth..per.Share.	0.001915 **
Y5.Operating.CF.Growth..per.Share.	0.633393
Y3.Operating.CF.Growth..per.Share.	0.646918
Y10.Net.Income.Growth..per.Share.	0.183588
Y5.Net.Income.Growth..per.Share.	0.241671
Y3.Net.Income.Growth..per.Share.	0.438842
Y10.Shareholders.Equity.Growth..per.Share.	0.207207
Y5.Shareholders.Equity.Growth..per.Share.	0.001307 **
Y3.Shareholders.Equity.Growth..per.Share.	0.265777
Y10.Dividend.per.Share.Growth..per.Share.	0.398823
Y5.Dividend.per.Share.Growth..per.Share.	0.310505
Y3.Dividend.per.Share.Growth..per.Share.	0.216150
Receivables.growth	0.205638
Inventory.Growth	0.341046
Asset.Growth	0.853246
Book.Value.per.Share.Growth	0.960203
Debt.Growth	0.493337
R.D.Expense.Growth	0.364713
SG.A.Expenses.Growth	0.565904

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 4527.2 on 3400 degrees of freedom
Residual deviance: 4094.7 on 3208 degrees of freedom
AIC: 4480.7

Number of Fisher Scoring iterations: 15

```
model <- glm(Class ~ . -cashFlowCoverageRatios -Operating.Cash.Flow.per.Share -Free.Cash.F
```

Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred

```
summary(model)
```

Call:

```
glm(formula = Class ~ . - cashFlowCoverageRatios - Operating.Cash.Flow.per.Share -  
  Free.Cash.Flow.per.Share - Cash.per.Share - Price.to.Sales.Ratio -  
  POCF.ratio - PFCF.ratio - PB.ratio - PTB.ratio - Debt.to.Equity -  
  Debt.to.Assets - Current.ratio - Interest.Coverage - Payout.Ratio -  
  ROIC - Return.on.Tangible.Assets - Days.Sales.Outstanding -  
  Days.Payables.Outstanding - Days.of.Inventory.on.Hand - Payables.Turnover -  
  Inventory.Turnover - ROE - PE.ratio - operatingProfitMargin -  
  nIperEBT - eBTperEBIT - eBITperRevenue, family = binomial(link = "logit"),  
  data = combined_finance)
```

Coefficients:

	Estimate	Std. Error	z value
(Intercept)	2.333e+01	1.953e+01	1.195
Revenue	1.355e-07	1.580e-07	0.858
Revenue.Growth	-7.000e-01	3.768e-01	-1.858
Cost.of.Revenue	-1.356e-07	1.580e-07	-0.858
Gross.Profit	-1.255e-07	1.287e-07	-0.975
R.D.Expenses	-1.692e-10	1.195e-10	-1.416
SG.A.Expense	6.354e-11	5.952e-11	1.068
Operating.Expenses	-1.010e-08	4.010e-08	-0.252
Operating.Income	-9.514e-09	4.011e-08	-0.237
Interest.Expense	7.047e-09	5.755e-08	0.122
Earnings.before.Tax	8.535e-09	6.025e-08	0.142

Income.Tax.Expense	-7.202e-10	2.174e-08	-0.033
Net.Income...Non.Controlling.int	-3.749e-08	9.645e-08	-0.389
Net.Income...Discontinued.ops	-5.847e-10	2.736e-10	-2.137
Net.Income	-7.541e-08	1.126e-07	-0.670
Preferred.Dividends	3.680e-08	5.622e-08	0.654
Net.Income.Com	3.865e-08	5.611e-08	0.689
EPS	-1.596e-01	3.506e-01	-0.455
EPS.Diluted	-3.918e-02	2.709e-01	-0.145
Weighted.Average.Shs.Out	-2.698e-09	3.240e-09	-0.833
Weighted.Average.Shs.Out..Dil.	3.137e-09	3.201e-09	0.980
Dividend.per.Share	8.722e-02	4.169e-02	2.092
Gross.Margin	1.355e+02	7.063e+01	1.919
EBITDA.Margin	-1.512e+00	1.717e+00	-0.880
EBIT.Margin	-1.792e+02	1.319e+02	-1.358
Profit.Margin	3.162e+00	5.150e+00	0.614
Free.Cash.Flow.margin	2.048e+02	1.643e+02	1.246
EBITDA	-5.637e-07	4.461e-07	-1.264
EBIT	5.555e-07	4.225e-07	1.315
Consolidated.Income	3.611e-08	9.645e-08	0.374
Earnings.Before.Tax.Margin	-2.670e+00	4.083e+00	-0.654
Net.Profit.Margin	-9.657e+00	3.594e+02	-0.027
Cash.and.cash.equivalents	5.327e-07	2.029e-06	0.263
Short.term.investments	6.287e-07	2.021e-06	0.311
Cash.and.short.term.investments	-5.104e-07	2.011e-06	-0.254
Receivables	-1.915e-09	1.880e-09	-1.019
Inventories	-1.408e-09	1.884e-09	-0.747
Total.current.assets	-3.080e-08	2.126e-08	-1.449
Property..Plant...Equipment.Net	2.209e-11	4.071e-11	0.543
Goodwill.and.Intangible.Assets	-3.103e-08	2.293e-08	-1.353
Long.term.investments	1.102e-08	2.359e-08	0.467
Tax.assets	-2.117e-10	1.366e-10	-1.549
Total.non.current.assets	6.447e-09	1.904e-08	0.339
Total.assets	2.447e-08	1.469e-08	1.666
Payables	1.221e-07	7.149e-08	1.708
Short.term.debt	-1.903e-08	3.502e-08	-0.543
Total.current.liabilities	-2.221e-07	1.669e-07	-1.331
Long.term.debt	-1.410e-07	9.364e-08	-1.506
Total.debt	1.173e-07	1.083e-07	1.083
Deferred.revenue	4.412e-11	7.424e-11	0.594
Tax.Liabilities	-3.601e-11	5.308e-11	-0.678
Deposit.Liabilities	-3.707e-12	5.124e-11	-0.072
Total.non.current.liabilities	-1.416e-08	3.667e-08	-0.386
Total.liabilities	5.403e-08	5.959e-08	0.907

Other.comprehensive.income	6.994e-11	5.515e-11	1.268
Retained.earnings..deficit.	-1.102e-11	1.028e-11	-1.072
Total.shareholders.equity	1.145e-10	1.180e-10	0.971
Investments	-1.107e-08	2.359e-08	-0.469
Net.Debt	3.241e-08	2.879e-08	1.126
Other.Assets	-1.452e-09	1.860e-09	-0.780
Other.Liabilities	1.220e-07	7.149e-08	1.706
Depreciation...Amortization	5.636e-07	4.461e-07	1.263
Stock_based.compensation	1.683e-09	7.245e-10	2.322
Operating.Cash.Flow	8.979e-09	2.032e-08	0.442
Capital.Expenditure	8.789e-09	2.032e-08	0.432
Acquisitions.and.disposals	7.185e-11	1.291e-10	0.557
Investment.purchases.and.sales	2.236e-10	1.310e-10	1.706
Investing.Cash.flow	3.396e-10	5.523e-10	0.615
Issuance..repayment..of.debt	7.219e-11	1.771e-10	0.408
Issuance..buybacks..of.shares	1.758e-10	1.804e-10	0.974
Dividend.payments	-4.723e-11	2.442e-10	-0.193
Financing.Cash.Flow	3.474e-10	5.687e-10	0.611
Effect.of.forex.changes.on.cash	-3.890e-09	1.214e-09	-3.205
Net.cash.flow...Change.in.cash	-5.649e-10	5.429e-10	-1.040
Free.Cash.Flow	-8.535e-09	2.032e-08	-0.420
Net.Cash.Marketcap	1.580e-01	2.382e-01	0.663
priceBookValueRatio	-5.627e-02	7.659e-02	-0.735
priceToBookRatio	-5.970e-05	4.885e-04	-0.122
priceToSalesRatio	-6.491e-02	3.028e-01	-0.214
priceEarningsRatio	-1.407e-04	5.107e-04	-0.275
priceToFreeCashFlowsRatio	9.621e-05	4.046e-04	0.238
priceToOperatingCashFlowsRatio	1.553e-02	1.791e-02	0.867
priceCashFlowRatio	-2.616e-02	1.613e-02	-1.621
priceEarningsToGrowthRatio	-4.988e-04	4.770e-04	-1.046
priceSalesRatio	1.376e-01	2.456e-01	0.560
dividendYield	-4.167e-01	6.465e-01	-0.645
enterpriseValueMultiple	7.031e-02	3.891e-02	1.807
priceFairValue	5.241e-02	7.590e-02	0.691
ebitperRevenue	1.844e+02	1.320e+02	1.397
ebtperEBIT	4.014e-01	4.975e-01	0.807
niperEBT	5.579e+00	6.548e+00	0.852
grossProfitMargin	-1.345e+02	7.064e+01	-1.904
pretaxProfitMargin	-2.571e+00	1.107e+00	-2.322
netProfitMargin	4.802e+00	3.592e+02	0.013
effectiveTaxRate	5.661e+00	6.548e+00	0.865
returnOnAssets	8.069e-03	9.260e-03	0.871
returnOnEquity	9.925e-02	2.201e-01	0.451

returnOnCapitalEmployed	3.428e-01	3.798e-01	0.903
payablesTurnover	-1.658e-03	2.722e-03	-0.609
inventoryTurnover	-3.440e-04	4.630e-04	-0.743
fixedAssetTurnover	-2.204e-05	3.848e-04	-0.057
assetTurnover	5.412e-02	9.046e-02	0.598
currentRatio	-2.190e-02	8.324e-02	-0.263
quickRatio	-3.575e-02	1.150e-01	-0.311
cashRatio	1.745e-02	1.059e-01	0.165
daysOfSalesOutstanding	9.704e-04	7.896e-04	1.229
daysOfInventoryOutstanding	-6.156e-05	1.402e-03	-0.044
daysOfPayablesOutstanding	-4.063e-03	2.007e-03	-2.025
debtRatio	-1.012e+00	1.243e+00	-0.814
debtEquityRatio	-1.578e-02	4.641e-02	-0.340
longtermDebtToCapitalization	-1.801e+00	9.745e-01	-1.848
totalDebtToCapitalization	2.337e+00	1.344e+00	1.739
interestCoverage	-1.419e-04	1.817e-04	-0.781
cashFlowToDebtRatio	6.706e-04	6.657e-04	1.007
companyEquityMultiplier	6.280e-03	3.533e-02	0.178
operatingCashFlowPerShare	8.709e-03	3.806e-02	0.229
freeCashFlowPerShare	2.036e-02	3.635e-02	0.560
cashPerShare	-1.627e-02	9.797e-03	-1.661
payoutRatio	-2.385e-02	2.702e-02	-0.883
operatingCashFlowSalesRatio	-2.053e+02	1.643e+02	-1.249
freeCashFlowOperatingCashFlowRatio	-2.895e+01	2.476e+01	-1.169
shortTermCoverageRatios	1.570e-06	1.235e-05	0.127
capitalExpenditureCoverageRatios	-2.173e-03	5.857e-03	-0.371
dividendpaidAndCapexCoverageRatios	4.166e-04	6.042e-03	0.069
dividendPayoutRatio	2.899e-02	3.631e-02	0.798
Revenue.per.Share	-7.487e-04	9.101e-04	-0.823
Net.Income.per.Share	2.600e-01	2.216e-01	1.173
Book.Value.per.Share	8.487e-02	6.026e-02	1.409
Tangible.Book.Value.per.Share	-4.270e-04	3.225e-03	-0.132
Shareholders.Equity.per.Share	-7.218e-02	5.901e-02	-1.223
Interest.Debt.per.Share	-2.838e-03	4.279e-03	-0.663
Market.Cap	-7.627e-08	6.756e-08	-1.129
Enterprise.Value	7.626e-08	6.756e-08	1.129
EV.to.Sales	1.072e-01	1.991e-01	0.539
Enterprise.Value.over.EBITDA	-8.205e-02	4.255e-02	-1.928
EV.to.Operating.cash.flow	3.991e-03	7.109e-03	0.561
EV.to.Free.cash.flow	-2.355e-05	1.852e-04	-0.127
Earnings.Yield	2.641e-01	1.018e+00	0.259
Free.Cash.Flow.Yield	3.347e-01	2.672e-01	1.253
Net.Debt.to.EBITDA	3.451e-02	5.496e-02	0.628

Income.Quality	2.047e-03	2.064e-03	0.992
Dividend.Yield	-3.352e+00	1.547e+00	-2.166
SG.A.to.Revenue	-9.009e-01	8.430e-01	-1.069
R.D.to.Revenue	3.456e+00	1.453e+00	2.379
Intangibles.to.Total.Assets	9.284e-01	3.178e-01	2.921
Capex.to.Operating.Cash.Flow	-2.885e+01	2.476e+01	-1.165
Capex.to.Revenue	2.044e+02	1.643e+02	1.244
Capex.to.Depreciation	-9.098e-02	6.727e-02	-1.353
Stock.based.compensation.to.Revenue	-9.805e+00	4.989e+00	-1.965
Graham.Number	-1.290e-02	1.066e-02	-1.210
Graham.Net.Net	-2.519e-01	1.785e-01	-1.411
Working.Capital	-1.083e-09	1.744e-09	-0.621
Tangible.Asset.Value	5.397e-08	5.540e-08	0.974
Net.Current.Asset.Value	3.974e-08	3.078e-08	1.291
Invested.Capital	-8.498e-08	7.658e-08	-1.110
Average.Receivables	4.539e-10	3.114e-10	1.458
Average.Payables	-2.691e-11	2.410e-10	-0.112
Average.Inventory	-7.533e-11	3.465e-10	-0.217
Receivables.Turnover	-4.064e-04	4.096e-04	-0.992
Capex.per.Share	-1.846e-02	4.185e-02	-0.441
Gross.Profit.Growth	-1.890e-01	1.323e-01	-1.428
EBIT.Growth	-3.625e-05	6.685e-04	-0.054
Operating.Income.Growth	4.008e-03	4.608e-03	0.870
Net.Income.Growth	4.092e-03	4.050e-03	1.010
EPS.Growth	4.791e-02	1.085e-01	0.442
EPS.Diluted.Growth	-5.512e-02	1.101e-01	-0.501
Weighted.Average.Shares.Growth	7.962e-01	6.264e-01	1.271
Weighted.Average.Shares.Diluted.Growth	-1.719e-01	2.572e-01	-0.668
Dividends.per.Share.Growth	-5.717e-03	1.699e-02	-0.337
Operating.Cash.Flow.growth	1.166e-02	1.222e-02	0.954
Free.Cash.Flow.growth	3.356e-03	2.831e-03	1.185
Y10.Revenue.Growth..per.Share.	-2.625e+00	6.819e-01	-3.849
Y5.Revenue.Growth..per.Share.	2.355e-01	6.727e-01	0.350
Y3.Revenue.Growth..per.Share.	1.632e+00	5.977e-01	2.730
Y10.Operating.CF.Growth..per.Share.	1.604e+00	5.170e-01	3.103
Y5.Operating.CF.Growth..per.Share.	1.359e-01	2.849e-01	0.477
Y3.Operating.CF.Growth..per.Share.	-7.634e-02	1.667e-01	-0.458
Y10.Net.Income.Growth..per.Share.	6.184e-01	4.650e-01	1.330
Y5.Net.Income.Growth..per.Share.	-2.460e-01	2.101e-01	-1.171
Y3.Net.Income.Growth..per.Share.	-7.245e-02	9.359e-02	-0.774
Y10.Shareholders.Equity.Growth..per.Share.	7.433e-01	5.893e-01	1.261
Y5.Shareholders.Equity.Growth..per.Share.	-1.307e+00	4.066e-01	-3.215
Y3.Shareholders.Equity.Growth..per.Share.	2.855e-01	2.565e-01	1.113

Y10.Dividend.per.Share.Growth..per.Share.	1.839e-01	2.180e-01	0.844
Y5.Dividend.per.Share.Growth..per.Share.	2.389e-01	2.356e-01	1.014
Y3.Dividend.per.Share.Growth..per.Share.	2.511e-01	2.030e-01	1.237
Receivables.growth	-1.176e-01	9.295e-02	-1.266
Inventory.Growth	-1.202e-01	1.262e-01	-0.952
Asset.Growth	-3.671e-02	1.985e-01	-0.185
Book.Value.per.Share.Growth	9.839e-04	1.972e-02	0.050
Debt.Growth	-9.234e-04	1.348e-03	-0.685
R.D.Expense.Growth	-2.620e-01	2.890e-01	-0.906
SG.A.Expenses.Growth	-1.889e-01	3.290e-01	-0.574
	Pr(> z)		
(Intercept)	0.232232		
Revenue	0.390832		
Revenue.Growth	0.063199	.	
Cost.of.Revenue	0.390771		
Gross.Profit	0.329355		
R.D.Expenses	0.156911		
SG.A.Expense	0.285717		
Operating.Expenses	0.801183		
Operating.Income	0.812473		
Interest.Expense	0.902541		
Earnings.before.Tax	0.887346		
Income.Tax.Expense	0.973573		
Net.Income...Non.Controlling.int	0.697485		
Net.Income...Discontinued.ops	0.032623 *		
Net.Income	0.502901		
Preferred.Dividends	0.512813		
Net.Income.Com	0.490983		
EPS	0.648911		
EPS.Diluted	0.885005		
Weighted.Average.Shs.Out	0.405125		
Weighted.Average.Shs.Out..Dil.	0.327042		
Dividend.per.Share	0.036436 *		
Gross.Margin	0.055021	.	
EBITDA.Margin	0.378619		
EBIT.Margin	0.174505		
Profit.Margin	0.539284		
Free.Cash.Flow.margin	0.212697		
EBITDA	0.206345		
EBIT	0.188610		
Consolidated.Income	0.708133		
Earnings.Before.Tax.Margin	0.513069		
Net.Profit.Margin	0.978564		

Cash.and.cash.equivalents	0.792858
Short.term.investments	0.755756
Cash.and.short.term.investments	0.799644
Receivables	0.308355
Inventories	0.454945
Total.current.assets	0.147350
Property..Plant...Equipment.Net	0.587428
Goodwill.and.Intangible.Assets	0.176041
Long.term.investments	0.640547
Tax.assets	0.121343
Total.non.current.assets	0.734849
Total.assets	0.095734 .
Payables	0.087660 .
Short.term.debt	0.586847
Total.current.liabilities	0.183256
Long.term.debt	0.132109
Total.debt	0.278650
Deferred.revenue	0.552290
Tax.Liabilities	0.497501
Deposit.Liabilities	0.942330
Total.non.current.liabilities	0.699306
Total.liabilities	0.364569
Other.comprehensive.income	0.204784
Retained.earnings..deficit.	0.283826
Total.shareholders.equity	0.331756
Investments	0.639044
Net.Debt	0.260310
Other.Assets	0.435246
Other.Liabilities	0.088013 .
Depreciation...Amortization	0.206464
Stock.based.compensation	0.020209 *
Operating.Cash.Flow	0.658625
Capital.Expenditure	0.665434
Acquisitions.and.disposals	0.577781
Investment.purchases.and.sales	0.087919 .
Investing.Cash.flow	0.538640
Issuance..repayment..of.debt	0.683601
Issuance..buybacks..of.shares	0.329823
Dividend.payments	0.846638
Financing.Cash.Flow	0.541247
Effect.of.forex.changes.on.cash	0.001349 **
Net.cash.flow...Change.in.cash	0.298155
Free.Cash.Flow	0.674524

Net.Cash.Marketcap	0.507122
priceBookValueRatio	0.462561
priceToBookRatio	0.902736
priceToSalesRatio	0.830245
priceEarningsRatio	0.782960
priceToFreeCashFlowsRatio	0.812064
priceToOperatingCashFlowsRatio	0.385955
priceCashFlowRatio	0.104925
priceEarningsToGrowthRatio	0.295727
priceSalesRatio	0.575260
dividendYield	0.519245
enterpriseValueMultiple	0.070746 .
priceFairValue	0.489862
ebitperRevenue	0.162494
ebtperEBIT	0.419757
niperEBT	0.394206
grossProfitMargin	0.056925 .
pretaxProfitMargin	0.020208 *
netProfitMargin	0.989335
effectiveTaxRate	0.387280
returnOnAssets	0.383557
returnOnEquity	0.652082
returnOnCapitalEmployed	0.366647
payablesTurnover	0.542386
inventoryTurnover	0.457507
fixedAssetTurnover	0.954332
assetTurnover	0.549618
currentRatio	0.792439
quickRatio	0.755978
cashRatio	0.869046
daysOfSalesOutstanding	0.219072
daysOfInventoryOutstanding	0.964974
daysOfPayablesOutstanding	0.042900 *
debtRatio	0.415727
debtEquityRatio	0.733886
longtermDebtToCapitalization	0.064632 .
totalDebtToCapitalization	0.082006 .
interestCoverage	0.434753
cashFlowToDebtRatio	0.313774
companyEquityMultiplier	0.858903
operatingCashFlowPerShare	0.818977
freeCashFlowPerShare	0.575383
cashPerShare	0.096804 .

payoutRatio	0.377389
operatingCashFlowSalesRatio	0.211572
freeCashFlowOperatingCashFlowRatio	0.242344
shortTermCoverageRatios	0.898864
capitalExpenditureCoverageRatios	0.710641
dividendpaidAndCapexCoverageRatios	0.945027
dividendPayoutRatio	0.424634
Revenue.per.Share	0.410711
Net.Income.per.Share	0.240660
Book.Value.per.Share	0.158962
Tangible.Book.Value.per.Share	0.894652
Shareholders.Equity.per.Share	0.221227
Interest.Debt.per.Share	0.507175
Market.Cap	0.258903
Enterprise.Value	0.258968
EV.to.Sales	0.590079
Enterprise.Value.over.EBITDA	0.053798 .
EV.to.Operating.cash.flow	0.574570
EV.to.Free.cash.flow	0.898839
Earnings.Yield	0.795297
Free.Cash.Flow.Yield	0.210372
Net.Debt.to.EBITDA	0.530107
Income.Quality	0.321225
Dividend.Yield	0.030290 *
SG.A.to.Revenue	0.285225
R.D.to.Revenue	0.017355 *
Intangibles.to.Total.Assets	0.003487 **
Capex.to.Operating.Cash.Flow	0.243926
Capex.to.Revenue	0.213606
Capex.to.Depreciation	0.176206
Stock.based.compensation.to.Revenue	0.049395 *
Graham.Number	0.226293
Graham.Net.Net	0.158151
Working.Capital	0.534674
Tangible.Asset.Value	0.329951
Net.Current.Asset.Value	0.196607
Invested.Capital	0.267117
Average.Receivables	0.144964
Average.Payables	0.911101
Average.Inventory	0.827865
Receivables.Turnover	0.321158
Capex.per.Share	0.659202
Gross.Profit.Growth	0.153262

EBIT.Growth	0.956753
Operating.Income.Growth	0.384429
Net.Income.Growth	0.312379
EPS.Growth	0.658770
EPS.Diluted.Growth	0.616527
Weighted.Average.Shares.Growth	0.203722
Weighted.Average.Shares.Diluted.Growth	0.504067
Dividends.per.Share.Growth	0.736491
Operating.Cash.Flow.growth	0.340005
Free.Cash.Flow.growth	0.235838
Y10.Revenue.Growth..per.Share.	0.000119 ***
Y5.Revenue.Growth..per.Share.	0.726233
Y3.Revenue.Growth..per.Share.	0.006326 **
Y10.Operating.CF.Growth..per.Share.	0.001915 **
Y5.Operating.CF.Growth..per.Share.	0.633393
Y3.Operating.CF.Growth..per.Share.	0.646918
Y10.Net.Income.Growth..per.Share.	0.183588
Y5.Net.Income.Growth..per.Share.	0.241671
Y3.Net.Income.Growth..per.Share.	0.438842
Y10.Shareholders.Equity.Growth..per.Share.	0.207207
Y5.Shareholders.Equity.Growth..per.Share.	0.001307 **
Y3.Shareholders.Equity.Growth..per.Share.	0.265777
Y10.Dividend.per.Share.Growth..per.Share.	0.398823
Y5.Dividend.per.Share.Growth..per.Share.	0.310505
Y3.Dividend.per.Share.Growth..per.Share.	0.216150
Receivables.growth	0.205638
Inventory.Growth	0.341046
Asset.Growth	0.853246
Book.Value.per.Share.Growth	0.960203
Debt.Growth	0.493337
R.D.Expense.Growth	0.364713
SG.A.Expenses.Growth	0.565904

Signif. codes:	0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 4527.2 on 3400 degrees of freedom
 Residual deviance: 4094.7 on 3208 degrees of freedom
 AIC: 4480.7

Number of Fisher Scoring iterations: 15

```
anova(model, test = 'Chisq')
```

Analysis of Deviance Table

Model: binomial, link: logit

Response: Class

Terms added sequentially (first to last)

	Df	Deviance	Resid. Df	Resid. Dev
NULL			3400	4527
Revenue	1	2	3399	4525
Revenue.Growth	1	16	3398	4509
Cost.of.Revenue	1	8	3397	4501
Gross.Profit	1	0	3396	4500
R.D.Expenses	1	1	3395	4500
SG.A.Expense	1	0	3394	4499
Operating.Expenses	1	4	3393	4496
Operating.Income	1	0	3392	4496
Interest.Expense	1	1	3391	4495
Earnings.before.Tax	1	2	3390	4493
Income.Tax.Expense	1	1	3389	4492
Net.Income...Non.Controlling.int	1	1	3388	4491
Net.Income...Discontinued.ops	1	1	3387	4490
Net.Income	1	10	3386	4480
Preferred.Dividends	1	0	3385	4480
Net.Income.Com	1	2	3384	4479
EPS	1	2	3383	4477
EPS.Diluted	1	0	3382	4477
Weighted.Average.Shs.Out	1	2	3381	4475
Weighted.Average.Shs.Out..Dil.	1	1	3380	4474
Dividend.per.Share	1	2	3379	4472
Gross.Margin	1	13	3378	4459
EBITDA.Margin	1	3	3377	4456
EBIT.Margin	1	2	3376	4454
Profit.Margin	1	5	3375	4449
Free.Cash.Flow.margin	1	0	3374	4448
EBITDA	1	2	3373	4447
EBIT	1	3	3372	4444
Consolidated.Income	1	1	3371	4442
Earnings.Before.Tax.Margin	1	0	3370	4442

Net.Profit.Margin	1	0	3369	4442
Cash.and.cash.equivalents	1	0	3368	4441
Short.term.investments	1	1	3367	4441
Cash.and.short.term.investments	1	0	3366	4440
Receivables	1	1	3365	4439
Inventories	1	0	3364	4439
Total.current.assets	1	3	3363	4437
Property..Plant...Equipment.Net	1	8	3362	4429
Goodwill.and.Intangible.Assets	1	4	3361	4425
Long.term.investments	1	1	3360	4425
Tax.assets	1	1	3359	4424
Total.non.current.assets	1	2	3358	4421
Total.assets	1	1	3357	4420
Payables	1	1	3356	4419
Short.term.debt	1	2	3355	4417
Total.current.liabilities	1	7	3354	4411
Long.term.debt	1	0	3353	4410
Total.debt	1	0	3352	4410
Deferred.revenue	1	2	3351	4408
Tax.Liabilities	1	0	3350	4408
Deposit.Liabilities	1	0	3349	4408
Total.non.current.liabilities	1	0	3348	4408
Total.liabilities	1	1	3347	4407
Other.comprehensive.income	1	1	3346	4406
Retained.earnings..deficit.	1	1	3345	4404
Total.shareholders.equity	1	3	3344	4401
Investments	1	1	3343	4400
Net.Debt	1	0	3342	4400
Other.Assets	1	2	3341	4399
Other.Liabilities	1	2	3340	4397
Depreciation...Amortization	1	5	3339	4392
Stock.based.compensation	1	4	3338	4387
Operating.Cash.Flow	1	0	3337	4387
Capital.Expenditure	1	0	3336	4387
Acquisitions.and.disposals	1	2	3335	4385
Investment.purchases.and.sales	1	2	3334	4383
Investing.Cash.flow	1	1	3333	4382
Issuance..repayment..of.debt	1	6	3332	4377
Issuance..buybacks..of.shares	1	0	3331	4376
Dividend.payments	1	0	3330	4376
Financing.Cash.Flow	1	5	3329	4371
Effect.of.forex.changes.on.cash	1	31	3328	4340
Net.cash.flow...Change.in.cash	1	2	3327	4338

Free.Cash.Flow	1	0	3326	4338
Net.Cash.Marketcap	1	1	3325	4337
priceBookValueRatio	1	0	3324	4337
priceToBookRatio	1	0	3323	4337
priceToSalesRatio	1	3	3322	4334
priceEarningsRatio	1	2	3321	4333
priceToFreeCashFlowsRatio	1	0	3320	4332
priceToOperatingCashFlowsRatio	1	13	3319	4320
priceCashFlowRatio	1	0	3318	4319
priceEarningsToGrowthRatio	1	2	3317	4318
priceSalesRatio	1	0	3316	4318
dividendYield	1	2	3315	4316
enterpriseValueMultiple	1	1	3314	4315
priceFairValue	1	2	3313	4313
ebitperRevenue	1	0	3312	4312
ebtperEBIT	1	3	3311	4310
niperEBT	1	7	3310	4303
grossProfitMargin	1	1	3309	4303
pretaxProfitMargin	1	1	3308	4301
netProfitMargin	1	2	3307	4300
effectiveTaxRate	1	0	3306	4299
returnOnAssets	1	1	3305	4298
returnOnEquity	1	0	3304	4298
returnOnCapitalEmployed	1	0	3303	4297
payablesTurnover	1	1	3302	4297
inventoryTurnover	1	0	3301	4296
fixedAssetTurnover	1	1	3300	4296
assetTurnover	1	1	3299	4295
currentRatio	1	15	3298	4279
quickRatio	1	2	3297	4278
cashRatio	1	0	3296	4277
daysOfSalesOutstanding	1	2	3295	4275
daysOfInventoryOutstanding	1	4	3294	4272
daysOfPayablesOutstanding	1	2	3293	4269
debtRatio	1	0	3292	4269
debtEquityRatio	1	1	3291	4268
longtermDebtToCapitalization	1	1	3290	4267
totalDebtToCapitalization	1	2	3289	4265
interestCoverage	1	0	3288	4265
cashFlowToDebtRatio	1	3	3287	4262
companyEquityMultiplier	1	0	3286	4262
operatingCashFlowPerShare	1	5	3285	4256
freeCashFlowPerShare	1	0	3284	4256

cashPerShare	1	1	3283	4255
payoutRatio	1	1	3282	4254
operatingCashFlowSalesRatio	1	1	3281	4253
freeCashFlowOperatingCashFlowRatio	1	0	3280	4253
shortTermCoverageRatios	1	0	3279	4253
capitalExpenditureCoverageRatios	1	4	3278	4250
dividendpaidAndCapexCoverageRatios	1	0	3277	4250
dividendPayoutRatio	1	1	3276	4249
Revenue.per.Share	1	0	3275	4249
Net.Income.per.Share	1	1	3274	4247
Book.Value.per.Share	1	0	3273	4247
Tangible.Book.Value.per.Share	1	4	3272	4243
Shareholders.Equity.per.Share	1	2	3271	4241
Interest.Debt.per.Share	1	0	3270	4241
Market.Cap	1	2	3269	4239
Enterprise.Value	1	0	3268	4239
EV.to.Sales	1	1	3267	4238
Enterprise.Value.over.EBITDA	1	1	3266	4237
EV.to.Operating.cash.flow	1	0	3265	4237
EV.to.Free.cash.flow	1	0	3264	4237
Earnings.Yield	1	1	3263	4236
Free.Cash.Flow.Yield	1	1	3262	4236
Net.Debt.to.EBITDA	1	0	3261	4236
Income.Quality	1	2	3260	4234
Dividend.Yield	1	5	3259	4229
SG.A.to.Revenue	1	4	3258	4225
R.D.to.Revenue	1	2	3257	4223
Intangibles.to.Total.Assets	1	9	3256	4214
Capex.to.Operating.Cash.Flow	1	9	3255	4205
Capex.to.Revenue	1	4	3254	4201
Capex.to.Depreciation	1	4	3253	4197
Stock.based.compensation.to.Revenue	1	6	3252	4191
Graham.Number	1	2	3251	4189
Graham.Net.Net	1	2	3250	4187
Working.Capital	1	1	3249	4186
Tangible.Asset.Value	1	2	3248	4184
Net.Current.Asset.Value	1	1	3247	4183
Invested.Capital	1	0	3246	108203
Average.Receivables	1	0	3245	109645
Average.Payables	1	0	3244	114042
Average.Inventory	1	7569	3243	106473
Receivables.Turnover	1	0	3242	112961
Capex.per.Share	1	1298	3241	111663

Gross.Profit.Growth	1	0	3240	112745
EBIT.Growth	1	2523	3239	110221
Operating.Income.Growth	1	10525	3238	99697
Net.Income.Growth	1	0	3237	121323
EPS.Growth	1	4542	3236	116781
EPS.Diluted.Growth	1	14490	3235	102292
Weighted.Average.Shares.Growth	1	0	3234	105320
Weighted.Average.Shares.Diluted.Growth	1	6272	3233	99048
Dividends.per.Share.Growth	1	5983	3232	93065
Operating.Cash.Flow.growth	1	288	3231	92776
Free.Cash.Flow.growth	1	0	3230	92848
Y10.Revenue.Growth..per.Share.	1	0	3229	129180
Y5.Revenue.Growth..per.Share.	1	125034	3228	4146
Y3.Revenue.Growth..per.Share.	1	7	3227	4139
Y10.Operating.CF.Growth..per.Share.	1	14	3226	4125
Y5.Operating.CF.Growth..per.Share.	1	0	3225	4125
Y3.Operating.CF.Growth..per.Share.	1	1	3224	4125
Y10.Net.Income.Growth..per.Share.	1	1	3223	4124
Y5.Net.Income.Growth..per.Share.	1	2	3222	4122
Y3.Net.Income.Growth..per.Share.	1	0	3221	4121
Y10.Shareholders.Equity.Growth..per.Share.	1	0	3220	4121
Y5.Shareholders.Equity.Growth..per.Share.	1	10	3219	4111
Y3.Shareholders.Equity.Growth..per.Share.	1	1	3218	4110
Y10.Dividend.per.Share.Growth..per.Share.	1	3	3217	4107
Y5.Dividend.per.Share.Growth..per.Share.	1	3	3216	4104
Y3.Dividend.per.Share.Growth..per.Share.	1	2	3215	4102
Receivables.growth	1	4	3214	4098
Inventory.Growth	1	1	3213	4097
Asset.Growth	1	0	3212	4096
Book.Value.per.Share.Growth	1	0	3211	4096
Debt.Growth	1	1	3210	4096
R.D.Expense.Growth	1	1	3209	4095
SG.A.Expenses.Growth	1	0	3208	4095

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NULL	
Revenue	0.1194815
Revenue.Growth	7.096e-05 ***
Cost.of.Revenue	0.0041823 **
Gross.Profit	0.5062239
R.D.Expenses	0.4159392
SG.A.Expense	0.6076747
Operating.Expenses	0.0603918 .
Operating.Income	0.7249442

Interest.Expense	0.3606449
Earnings.before.Tax	0.1432963
Income.Tax.Expense	0.2892176
Net.Income...Non.Controlling.int	0.3382893
Net.Income...Discontinued.ops	0.3775012
Net.Income	0.0019794 **
Preferred.Dividends	0.9431283
Net.Income.Com	0.1916830
EPS	0.2127088
EPS.Diluted	0.8119436
Weighted.Average.Shs.Out	0.1242888
Weighted.Average.Shs.Out..Dil.	0.4104886
Dividend.per.Share	0.1575904
Gross.Margin	0.0003842 ***
EBITDA.Margin	0.0664545 .
EBIT.Margin	0.1514782
Profit.Margin	0.0191160 *
Free.Cash.Flow.margin	0.7145992
EBITDA	0.2034595
EBIT	0.0743917 .
Consolidated.Income	0.2213525
Earnings.Before.Tax.Margin	0.4909062
Net.Profit.Margin	0.7814674
Cash.and.cash.equivalents	0.6609140
Short.term.investments	0.3610002
Cash.and.short.term.investments	0.4986366
Receivables	0.3765441
Inventories	0.9160602
Total.current.assets	0.1045020
Property..Plant...Equipment.Net	0.0061019 **
Goodwill.and.Intangible.Assets	0.0469933 *
Long.term.investments	0.4439227
Tax.assets	0.3800498
Total.non.current.assets	0.1171205
Total.assets	0.2586346
Payables	0.3115309
Short.term.debt	0.1948121
Total.current.liabilities	0.0102458 *
Long.term.debt	0.5342735
Total.debt	0.6214298
Deferred.revenue	0.1192580
Tax.Liabilities	0.8929606
Deposit.Liabilities	0.6742859

Total.non.current.liabilities	0.9357561
Total.liabilities	0.3868426
Other.comprehensive.income	0.3239275
Retained.earnings..deficit.	0.2298774
Total.shareholders.equity	0.0785689 .
Investments	0.3205227
Net.Debt	0.6966539
Other.Assets	0.2080265
Other.Liabilities	0.1681246
Depreciation...Amortization	0.0240965 *
Stock.based.compensation	0.0342988 *
Operating.Cash.Flow	0.8855299
Capital.Expenditure	0.6818503
Acquisitions.and.disposals	0.1685672
Investment.purchases.and.sales	0.1468798
Investing.Cash.flow	0.4041577
Issuance..repayment..of.debt	0.0170310 *
Issuance..buybacks..of.shares	0.8921670
Dividend.payments	0.5939618
Financing.Cash.Flow	0.0271758 *
Effect.of.forex.changes.on.cash	2.206e-08 ***
Net.cash.flow...Change.in.cash	0.2161446
Free.Cash.Flow	0.5890970
Net.Cash.Marketcap	0.2761220
priceBookValueRatio	0.9306318
priceToBookRatio	0.8689512
priceToSalesRatio	0.0965263 .
priceEarningsRatio	0.2128285
priceToFreeCashFlowsRatio	0.6609503
priceToOperatingCashFlowsRatio	0.0003323 ***
priceCashFlowRatio	0.5404667
priceEarningsToGrowthRatio	0.2092978
priceSalesRatio	0.8276451
dividendYield	0.1828506
enterpriseValueMultiple	0.3073704
priceFairValue	0.1314026
ebitperRevenue	0.8573662
ebtperEBIT	0.1082990
niperEBT	0.0101958 *
grossProfitMargin	0.3867258
pretaxProfitMargin	0.2510535
netProfitMargin	0.2016802
effectiveTaxRate	0.5456077

returnOnAssets	0.2480556
returnOnEquity	0.7074288
returnOnCapitalEmployed	0.5275455
payablesTurnover	0.3753071
inventoryTurnover	0.6562083
fixedAssetTurnover	0.4551435
assetTurnover	0.2710660
currentRatio	9.607e-05 ***
quickRatio	0.1858271
cashRatio	0.6925294
daysOfSalesOutstanding	0.1282131
daysOfInventoryOutstanding	0.0559974 .
daysOfPayablesOutstanding	0.1387319
debtRatio	0.7567568
debtEquityRatio	0.2346917
longtermDebtToCapitalization	0.2831090
totalDebtToCapitalization	0.1927299
interestCoverage	0.4932877
cashFlowToDebtRatio	0.1044610
companyEquityMultiplier	0.8294859
operatingCashFlowPerShare	0.0205601 *
freeCashFlowPerShare	0.4887332
cashPerShare	0.2926994
payoutRatio	0.3485528
operatingCashFlowSalesRatio	0.4112205
freeCashFlowOperatingCashFlowRatio	0.6360811
shortTermCoverageRatios	0.9820985
capitalExpenditureCoverageRatios	0.0608612 .
dividendpaidAndCapexCoverageRatios	0.8004324
dividendPayoutRatio	0.3668469
Revenue.per.Share	0.6611136
Net.Income.per.Share	0.3133184
Book.Value.per.Share	0.5545748
Tangible.Book.Value.per.Share	0.0472841 *
Shareholders.Equity.per.Share	0.1718542
Interest.Debt.per.Share	0.9296916
Market.Cap	0.1411705
Enterprise.Value	0.4996159
EV.to.Sales	0.4400403
Enterprise.Value.over.EBITDA	0.3094001
EV.to.Operating.cash.flow	0.7725579
EV.to.Free.cash.flow	0.8534933
Earnings.Yield	0.4381225

Free.Cash.Flow.Yield	0.3874506
Net.Debt.to.EBITDA	0.9946509
Income.Quality	0.2042392
Dividend.Yield	0.0217857 *
SG.A.to.Revenue	0.0441200 *
R.D.to.Revenue	0.2050388
Intangibles.to.Total.Assets	0.0024851 **
Capex.to.Operating.Cash.Flow	0.0030840 **
Capex.to.Revenue	0.0399784 *
Capex.to.Depreciation	0.0398639 *
Stock.based.compensation.to.Revenue	0.0164568 *
Graham.Number	0.1488318
Graham.Net.Net	0.1995239
Working.Capital	0.3260947
Tangible.Asset.Value	0.1220681
Net.Current.Asset.Value	0.4561587
Invested.Capital	1.0000000
Average.Receivables	1.0000000
Average.Payables	1.0000000
Average.Inventory	< 2.2e-16 ***
Receivables.Turnover	1.0000000
Capex.per.Share	< 2.2e-16 ***
Gross.Profit.Growth	1.0000000
EBIT.Growth	< 2.2e-16 ***
Operating.Income.Growth	< 2.2e-16 ***
Net.Income.Growth	1.0000000
EPS.Growth	< 2.2e-16 ***
EPS.Diluted.Growth	< 2.2e-16 ***
Weighted.Average.Shares.Growth	1.0000000
Weighted.Average.Shares.Diluted.Growth	< 2.2e-16 ***
Dividends.per.Share.Growth	< 2.2e-16 ***
Operating.Cash.Flow.growth	< 2.2e-16 ***
Free.Cash.Flow.growth	1.0000000
Y10.Revenue.Growth..per.Share.	1.0000000
Y5.Revenue.Growth..per.Share.	< 2.2e-16 ***
Y3.Revenue.Growth..per.Share.	0.0083595 **
Y10.Operating.CF.Growth..per.Share.	0.0001913 ***
Y5.Operating.CF.Growth..per.Share.	0.8397109
Y3.Operating.CF.Growth..per.Share.	0.4340893
Y10.Net.Income.Growth..per.Share.	0.3060004
Y5.Net.Income.Growth..per.Share.	0.1600314
Y3.Net.Income.Growth..per.Share.	0.5773542
Y10.Shareholders.Equity.Growth..per.Share.	0.5917083

```

Y5.Shareholders.Equity.Growth..per.Share. 0.0017624 **
Y3.Shareholders.Equity.Growth..per.Share. 0.3387895
Y10.Dividend.per.Share.Growth..per.Share. 0.0733093 .
Y5.Dividend.per.Share.Growth..per.Share. 0.0818786 .
Y3.Dividend.per.Share.Growth..per.Share. 0.1974800
Receivables.growth                      0.0360292 *
Inventory.Growth                        0.2554277
Asset.Growth                            0.6422362
Book.Value.per.Share.Growth             0.9460093
Debt.Growth                             0.4748240
R.D.Expense.Growth                     0.3493527
SG.A.Expenses.Growth                   0.5662219
---
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

```

predictions <- predict(model, type = "response")

predicted_class <- ifelse(predictions > 0.5, 1, 0)

table(predicted_class, combined_finance$Class)

```

predicted_class	0	1
0	395	231
1	908	1867

```

accuracy <- sum(predicted_class == combined_finance$Class) / length(combined_finance$Class)
print(paste("Accuracy:", accuracy))

```

[1] "Accuracy: 0.665098500441047"

Other stuff you can do

```
vif(model)
```

	Revenue
	1.042036e+10

Revenue.Growth	
	3.407483e+00
Cost.of.Revenue	
	6.040867e+09
Gross.Profit	
	7.172543e+08
R.D.Expenses	
	6.866263e+00
SG.A.Expense	
	4.714661e+01
Operating.Expenses	
	3.467745e+07
Operating.Income	
	9.776063e+06
Interest.Expense	
	2.279795e+05
Earnings.before.Tax	
	2.058857e+07
Income.Tax.Expense	
	2.766744e+05
Net.Income...Non.Controlling.int	
	1.620781e+04
Net.Income...Discontinued.ops	
	2.578836e+00
Net.Income	
	4.579290e+07
Preferred.Dividends	
	9.470791e+02
Net.Income.Com	
	1.136629e+07
EPS	
	6.240625e+03
EPS.Diluted	
	3.708586e+03
Weighted.Average.Shs.Out	
	1.927684e+03
Weighted.Average.Shs.Out..Dil.	
	1.895813e+03
Dividend.per.Share	
	4.436976e+00
Gross.Margin	
	1.486802e+05
EBITDA.Margin	

	4.501067e+01
EBIT.Margin	1.613692e+05
Profit.Margin	1.908718e+02
Free.Cash.Flow.margin	2.146724e+05
EBITDA	2.351519e+09
EBIT	1.125470e+09
Consolidated.Income	3.407566e+07
Earnings.Before.Tax.Margin	1.267753e+02
Net.Profit.Margin	9.289031e+05
Cash.and.cash.equivalents	1.099446e+10
Short.term.investments	2.004136e+10
Cash.and.short.term.investments	4.318165e+10
Receivables	4.057132e+04
Inventories	1.143011e+04
Total.current.assets	1.949636e+07
Property..Plant...Equipment.Net	1.668018e+02
Goodwill.and.Intangible.Assets	4.014892e+07
Long.term.investments	1.199085e+07
Tax.assets	3.419095e+00
Total.non.current.assets	1.221103e+08
Total.assets	1.173584e+08
Payables	3.350087e+07

Short.term.debt	
	3.127001e+06
Total.current.liabilities	
	7.960649e+08
Long.term.debt	
	3.868032e+08
Total.debt	
	7.206325e+08
Deferred.revenue	
	3.743163e+00
Tax.Liabilities	
	1.459610e+01
Deposit.Liabilities	
	1.983464e+00
Total.non.current.liabilities	
	1.587783e+08
Total.liabilities	
	8.299022e+08
Other.comprehensive.income	
	4.688622e+00
Retained.earnings..deficit.	
	1.472654e+01
Total.shareholders.equity	
	1.154099e+03
Investments	
	1.966548e+07
Net.Debt	
	3.424520e+07
Other.Assets	
	1.098229e+04
Other.Liabilities	
	2.752903e+07
Depreciation...Amortization	
	2.717521e+08
Stock.based.compensation	
	1.102542e+01
Operating.Cash.Flow	
	3.432823e+06
Capital.Expenditure	
	6.686667e+05
Acquisitions.and.disposals	
	2.394750e+01
Investment.purchases.and.sales	

	2.154893e+01
Investing.Cash.flow	1.544434e+03
Issuance..repayment..of.debt	6.859038e+01
Issuance..buybacks..of.shares	5.369702e+01
Dividend.payments	3.434941e+01
Financing.Cash.Flow	1.137405e+03
Effect.of.forex.changes.on.cash	1.979569e+00
Net.cash.flow...Change.in.cash	3.140227e+02
Free.Cash.Flow	1.748989e+06
Net.Cash.Marketcap	1.289271e+01
priceBookValueRatio	1.099719e+03
priceToBookRatio	1.042835e+00
priceToSalesRatio	2.234621e+02
priceEarningsRatio	4.206812e+00
priceToFreeCashFlowsRatio	1.647067e+00
priceToOperatingCashFlowsRatio	1.116945e+02
priceCashFlowRatio	8.915386e+01
priceEarningsToGrowthRatio	4.812572e+00
priceSalesRatio	1.396381e+02
dividendYield	1.398026e+00
enterpriseValueMultiple	6.963213e+01
priceFairValue	1.059074e+03

```
ebitperRevenue
1.615703e+05
ebtperEBIT
5.279765e+00
niperEBT
2.494618e+04
grossProfitMargin
1.486953e+05
pretaxProfitMargin
8.083134e+00
netProfitMargin
9.280295e+05
effectiveTaxRate
2.494041e+04
returnOnAssets
1.055132e+00
returnOnEquity
2.065631e+01
returnOnCapitalEmployed
1.561194e+00
payablesTurnover
1.134774e+00
inventoryTurnover
1.115101e+00
fixedAssetTurnover
1.119963e+00
assetTurnover
3.710094e+00
currentRatio
1.199512e+01
quickRatio
1.740208e+01
cashRatio
7.748761e+00
daysOfSalesOutstanding
2.264114e+00
daysOfInventoryOutstanding
2.847294e+00
daysOfPayablesOutstanding
2.209572e+00
debtRatio
2.823045e+01
debtEquityRatio
```

	7.500340e+01
longtermDebtToCapitalization	3.378123e+01
	6.167886e+01
totalDebtToCapitalization	
	1.092280e+00
interestCoverage	
	1.060058e+00
cashFlowToDebtRatio	
	1.018936e+02
companyEquityMultiplier	
	1.018664e+00
operatingCashFlowPerShare	
	1.060704e+02
freeCashFlowPerShare	
	5.092088e+01
cashPerShare	
	3.120366e+00
payoutRatio	
	3.894232e+00
operatingCashFlowSalesRatio	
	2.394330e+05
freeCashFlowOperatingCashFlowRatio	
	2.067754e+05
shortTermCoverageRatios	
	1.018664e+00
capitalExpenditureCoverageRatios	
	1.648775e+01
dividendpaidAndCapexCoverageRatios	
	1.614195e+01
dividendPayoutRatio	
	4.292530e+00
Revenue.per.Share	
	1.612037e+01
Net.Income.per.Share	
	2.504494e+03
Book.Value.per.Share	
	1.681735e+04
Tangible.Book.Value.per.Share	
	1.094331e+02
Shareholders.Equity.per.Share	
	1.613245e+04
Interest.Debt.per.Share	
	8.650774e+00

Market.Cap	
	4.218492e+09
Enterprise.Value	
	5.238636e+09
EV.to.Sales	
	1.163896e+02
Enterprise.Value.over.EBITDA	
	7.130896e+01
EV.to.Operating.cash.flow	
	2.921482e+01
EV.to.Free.cash.flow	
	1.604312e+00
Earnings.Yield	
	3.113952e+00
Free.Cash.Flow.Yield	
	2.309232e+00
Net.Debt.to.EBITDA	
	1.243909e+01
Income.Quality	
	3.170758e+00
Dividend.Yield	
	4.672173e+00
SG.A.to.Revenue	
	1.070687e+01
R.D.to.Revenue	
	3.643514e+00
Intangibles.to.Total.Assets	
	3.425950e+00
Capex.to.Operating.Cash.Flow	
	2.065554e+05
Capex.to.Revenue	
	2.436742e+05
Capex.to.Depreciation	
	2.564430e+00
Stock.based.compensation.to.Revenue	
	2.667279e+00
Graham.Number	
	1.163365e+03
Graham.Net.Net	
	9.733443e+00
Working.Capital	
	2.173493e+04
Tangible.Asset.Value	

	1.021547e+09
Net.Current.Asset.Value	1.074365e+08
	2.273220e+09
Invested.Capital	
Average.Receivables	1.052357e+03
	3.501472e+02
Average.Payables	
Average.Inventory	3.700394e+02
	1.180242e+00
Receivables.Turnover	
Capex.per.Share	2.793129e+01
Gross.Profit.Growth	
	1.560918e+00
EBIT.Growth	
	1.055203e+00
Operating.Income.Growth	
	1.109780e+00
Net.Income.Growth	
	2.055527e+00
EPS.Growth	
	7.695157e+02
EPS.Diluted.Growth	
	7.722754e+02
Weighted.Average.Shares.Growth	
	2.057450e+00
Weighted.Average.Shares.Diluted.Growth	
	1.353961e+00
Dividends.per.Share.Growth	
	1.279862e+00
Operating.Cash.Flow.growth	
	1.138374e+00
Free.Cash.Flow.growth	
	1.038974e+00
Y10.Revenue.Growth..per.Share.	
	2.535717e+00
Y5.Revenue.Growth..per.Share.	
	3.156383e+00
Y3.Revenue.Growth..per.Share.	
	3.216323e+00

```

Y10.Operating.CF.Growth..per.Share.
1.862104e+00
Y5.Operating.CF.Growth..per.Share.
1.631951e+00
Y3.Operating.CF.Growth..per.Share.
1.427691e+00
Y10.Net.Income.Growth..per.Share.
1.923102e+00
Y5.Net.Income.Growth..per.Share.
1.507129e+00
Y3.Net.Income.Growth..per.Share.
1.206404e+00
Y10.Shareholders.Equity.Growth..per.Share.
2.121649e+00
Y5.Shareholders.Equity.Growth..per.Share.
2.035142e+00
Y3.Shareholders.Equity.Growth..per.Share.
1.745874e+00
Y10.Dividend.per.Share.Growth..per.Share.
1.420752e+00
Y5.Dividend.per.Share.Growth..per.Share.
1.673629e+00
Y3.Dividend.per.Share.Growth..per.Share.
1.677769e+00
    Receivables.growth
1.323555e+00
    Inventory.Growth
1.619466e+00
    Asset.Growth
2.434974e+00
    Book.Value.per.Share.Growth
1.210265e+00
    Debt.Growth
1.090990e+00
    R.D.Expense.Growth
1.353538e+00
    SG.A.Expenses.Growth
2.222221e+00

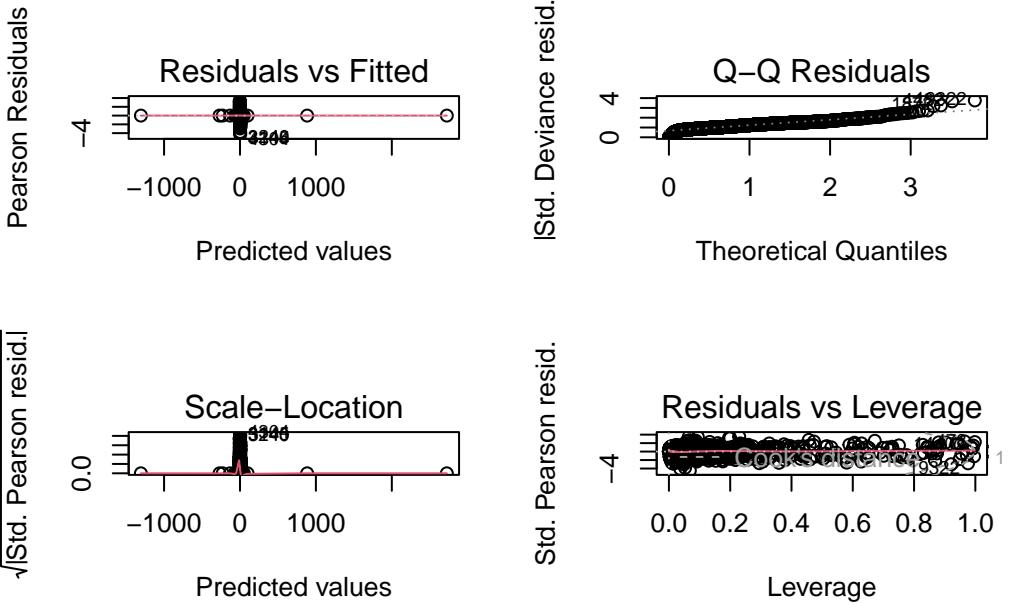
```

```

par(mfrow = c(2, 2))
plot(model)

```

```
Warning in sqrt(crit * p * (1 - hh)/hh): NaNs produced
Warning in sqrt(crit * p * (1 - hh)/hh): NaNs produced
```



```
library(boot)
```

```
Attaching package: 'boot'
```

```
The following object is masked from 'package:car':
```

```
logit
```

```
cv_model <- cv.glm(data = combined_finance, glmfit = model, K = 10) # 10-fold CV
```

```
Warning: glm.fit: algorithm did not converge
```

```
Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred
Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred
```

```
Warning: glm.fit: algorithm did not converge

Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred
Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred

Warning: glm.fit: algorithm did not converge

Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred

Warning: glm.fit: algorithm did not converge

Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred
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Warning: glm.fit: algorithm did not converge

Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred

Warning: glm.fit: algorithm did not converge

Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred
Warning: glm.fit: fitted probabilities numerically 0 or 1 occurred

print(cv_model$delta)

[1] 0.3553912 0.2446034

#step_model <- stepAIC(model, direction="both")
#summary(step_model)
```