Homework 4, by Somesh Srivastava, Feb 08, 2018

Executive Summary

As part of this study, annual financial data of companies from 1950 to 2017 has been taken and a summary of their earnings, cash flows, and leverage ratios (FD/TA, market and book-based)has been calculated

Details

Annual financial data of companies are taken from CRSP/Compustat Merged table. Date range is from Jan, 1, 1950 to Dec, 31, 2017. Data selection is based on the condition that financials of a company in a particular year should be available by Dec of the same year.

EBIT and EBITDA from P&L's are showing earnings numbers. Cash and cash equivalent from cash flow statement is showing cash flows. For leverage ratio, total financial debt has been calculated adding short term and long term borrowings. This sum has been divided by the total asset.

A summary statistics showing mean, minimum, maximum and different quantiles figure has been shown in the table below. A correlation matrix has been calculated to see any strong relation between these factors - earnings, cash flows and leverage. Bases on the numbers there is no strong correlation. .

Tables and Figures

Tables Used from CRSP:

Data	File	Variable	Type	Description
CRSP/Compustat Merged - Fundamentals Annual	ccmfunda	GVKEY	CHAR	Standard and Poor's Identifier
		FYEAR	NUM	FYEAR -- Data Year - Fiscal
		FDATE	DATE	FDATE -- Final Date
		CHECH	NUM	CHECH -- Cash and Cash Equivalents Increase/(Decrease)
		EBIT	NUM	EBIT -- Earnings Before Interest and Taxes
		EBITDA	NUM	EBITDA -- Earnings Before Interest
		AT	NUM	AT -- Assets - Total
		BAST	NUM	BAST -- Average Short-Term Borrowings
		DLTT	NUM	DLTT -- Long-Term Debt - Total

Results:

Statistics	EBIT	EBITDA	Cash & cash equivalent	Leverage
Min.	-3348.00	-2897	-14127	0
1st Qu.	-0.36	0.33	-1.816	0
Median	4.38	7.26	0.069	0.1249
Mean	129.27	180.35	7.436	0.1867
3rd Qu.	29.89	43.81	3.935	0.3006

Max.	55241.00	58446	13871	20.8922

Correlation Matrix:

Correlation Matrix	EBIT	EBITDA	Cash Flows	Leverage
EBIT	1.00	0.98	0.20	0.06
EBITDA	0.98	1.00	0.19	0.06
Cash & cash Equivalent	0.20	0.19	1.00	0.01
Leverage	0.06	0.06	0.01	1.00

Sample data:

GVKEY	Financial Year	EBIT	EBITDA	Cash Flows	Leverage
1001	1984	1.892	3.208	-2.761	0.26
1001	1985	5.238	7.247	0.895	0.41
1003	1983	2.089	2.138	1.71	0.18
1003	1984	0.732	0.825	-1.179	0.13
1009	1982	-2.344	-0.635	-0.015	0.65
1009	1983	2.645	4.249	-0.033	2.30
1009	1984	2.991	3.473	0.125	0.77
1009	1985	3.817	4.408	-0.281	0.50
1009	1986	3.719	4.388	0.172	0.56
1009	1987	2.028	2.821	-0.249	0.54

Computer Code

```
## Loading required libraries

if (!require("data.table")) install.packages("data.table")
if (!require("xts")) install.packages("xts")
if (!require("ggplot2")) install.packages("ggplot2")
if (!require("plyr")) install.packages("plyr")


setwd("D:/OneDrive for Business/MFE/Curriculum/Winter 2018/404-Corporate Finance and Risk Management - WELCH/Homework/HW4")

findata <- fread("./financialData.CSV", header = TRUE)
findata$datadate<- as.Date(as.character(findata$datadate), "%Y%m%d")

#subsetting data if the finacials of a particular year (fyear) was available before Dec of same year.
findata <- findata[year(findata$datadate)==findata$fyear]
findata <- findata[, c("GVKEY", "datadate", "fyear", "at", "bast", "chech", "dltt", "ebit", "ebitda")]
findata <- findata[complete.cases(findata)]
findata$leverage <- ifelse(findata$at>0, (findata$bast+findata$dltt)/findata$at, 0)
findata <- findata[, c("GVKEY", "fyear", "ebit", "ebitda", "chech", "leverage")]


nrow(findata)
```

```
n <- length(unique(findata$GVKEY))
cat("Number of companies: ", n)
summary(findata[, c(3, 4, 5, 6)])
cor(findata[, c(3, 4, 5, 6)])
```

References

- Wharton Research Data Services (WRDS) CRSP data taken on Feb 08, 2018.