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Multiplex Capital - A. Schnell, 2019

Key Figures

20.02.2019

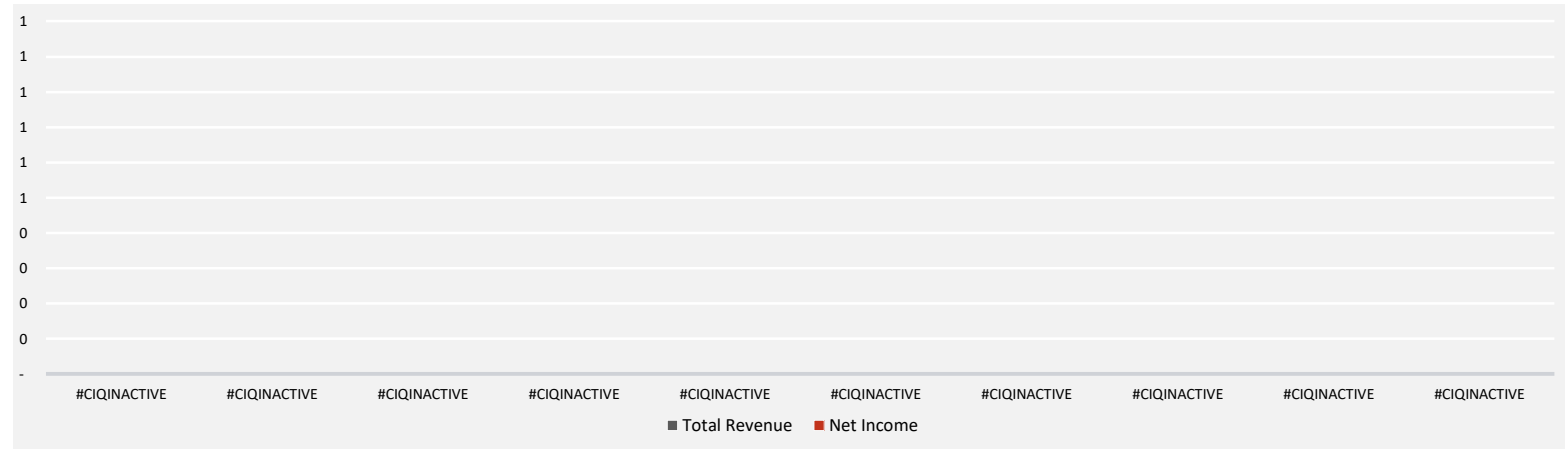
Company Profile

Name	#CIQINACTIVE
Ticker	NYSE:HOG
Reference Date	20.02.2019 <small>DD.MM.YYYY - keep void if current date shall be used</small>
Language	US
Currency	#CIQINACTIVE
Sector	#CIQINACTIVE
Industry	#CIQINACTIVE
Company Description	#CIQINACTIVE

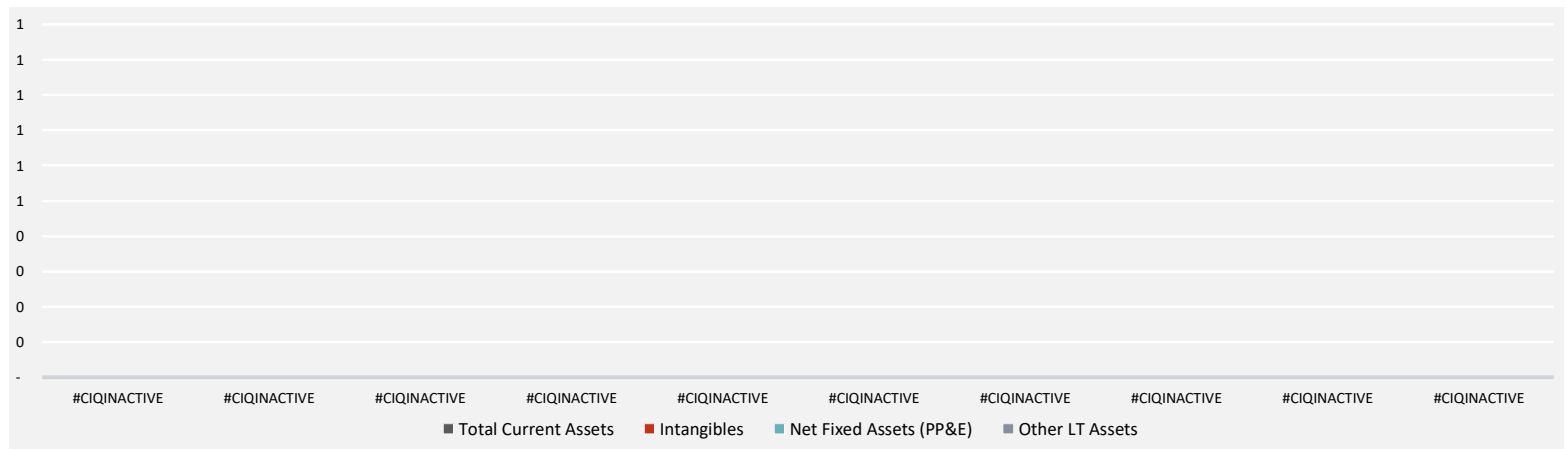
Income Statement

*) Fiscal Year-End Month

#WERT!

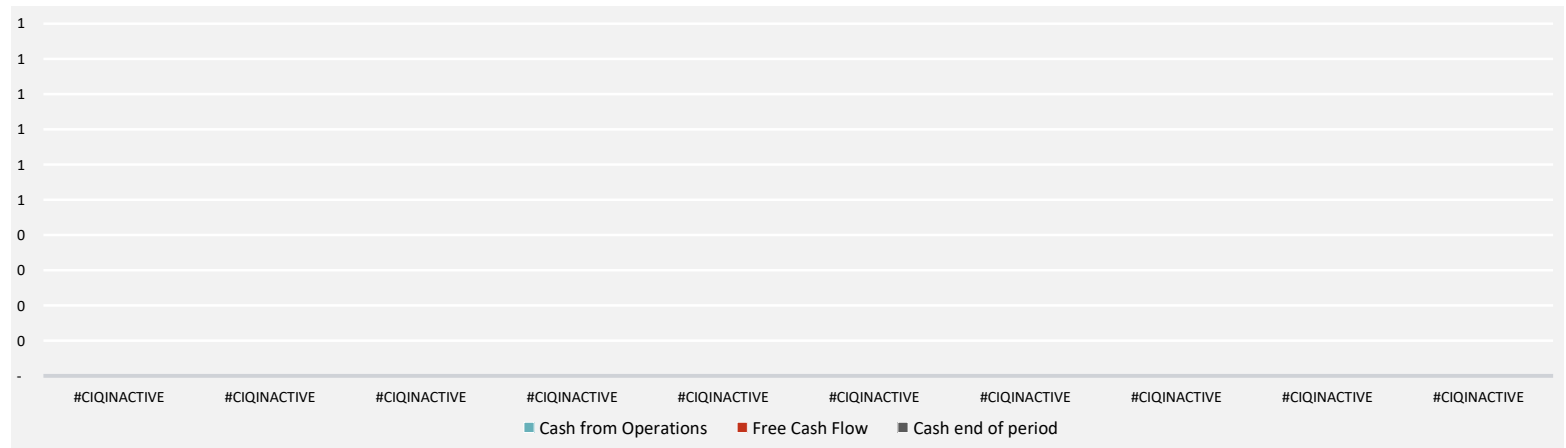


Balance Sheet





Cash Flows



Performance-Ratios

	#	YoY	#	YoY	#	YoY	#	YoY	#	YoY	#	YoY	#	YoY	#	YoY
Total Revenue Growth [YoY]		NA		NA		NA		NA		NA		NA		NA		NA
Per-Share Earning Growth [YoY]		NA		NA		NA		NA		NA		NA		NA		NA
FCF Growth [YoY]		NA		NA		NA		NA		NA		NA		NA		NA
Current Assets to Current Liabilities	#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE	
Quick Ratio <acid test>	#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE	
Working Capital to Debt		NA		NA		NA		NA		NA		NA		NA		NA
LT Liab. to Total Liab. and Equities		NA		NA		NA		NA		NA		NA		NA		NA
Intangibles to Total Assets		NA		NA		NA		NA		NA		NA		NA		NA
Inventory Turnover	#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE	
ROA <Return On Assets>		NA		NA		NA		NA		NA		NA		NA		NA
ROE <Return On Equity>		NA		NA		NA		NA		NA		NA		NA		NA
ROC <Return On Capital>		NA		NA		NA		NA		NA		NA		NA		NA
ROCE <Return On Capital Employed>		NA		NA		NA		NA		NA		NA		NA		NA
CROIC <Cash return on invested Capital>		NA		NA		NA		NA		NA		NA		NA		NA
Capitalization Rate		-		-		-		-		NA		NA		NA		NA
Diluted EPS	#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE	
Dividend per Share		-		-		-		-		-		-		-		-
Dividend Yield at YE		0,0%		0,0%		0,0%		0,0%		0,0%		0,0%		0,0%		0,0%
Book Value per Share	#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE	
Net Income to Total Revenue		NA		NA		NA		NA		NA		NA		NA		NA
Net Income to Book Value		NA		NA		NA		NA		NA		NA		NA		NA
Price to Sales	#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE	
Price Earning Ratio (PER)	#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE	
Price to Book Value	#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE		#CIQINACTIVE	
Price to Total Current Assets		NA		NA		NA		NA		NA		NA		NA		NA
Price to FCF		NA		NA		NA		NA		NA		NA		NA		NA

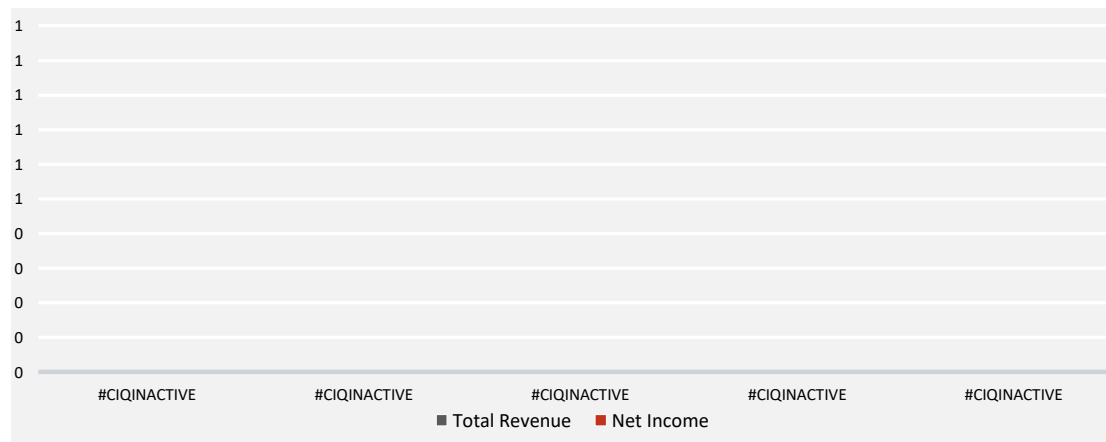
Selected Database

S&P Capital IQ

Template Version:

R902i

Income Statement -- Quarter View



Income Statement -- Estimation for Next Business Year

Result:	
YOY NI Growth	#WERT!
Expected NI Growth based on last 4Q	NA
Analysts Consensus on NI Growth	NA
Overall expected NI Growth	NA

Insider Trading -- Quarter View

	Insider Trading	
	last 3 months	last 4 quarters
Insider BUYS (# Stocks)	-	-
Average Insider BUYS (per quarter)	-	-
# Insider BUYERS	-	-



Company Value - Estimation

Name #CIQINACTIVE
 Ticker NYSE:HOG
 Currency #CIQINACTIVE

20.02.2019

Overview on Results of Company Value - Estimation

Method	Company Value (Intrinsic Value)		Intrinsic Value / Current Price	Current Price / Intrinsic Value	Margin of Safety (MOS)
	Total	per Share			
Adjusted Present Value DCF-APV	-	NA	NA	NA	NA
Simplified DCF-20-Yr	-	NA	NA	NA	NA
Simplified DCF-10-Yr	-	NA	NA	NA	NA
Earning Power Value DCF-EPV	-	NA	NA	NA	NA
DCF-GuO	-	NA	NA	NA	NA
Economic Profit Value	-	NA	NA	NA	NA
EGM-GuO	-	NA	NA	NA	NA
Intrinsic Value B. Graham	NA	NA	NA	NA	NA
Book Value	#CIQINACTIVE	NA	NA	NA	NA
Adjusted Book Value	NA	NA	NA	NA	NA
DDM-GuO	-	NA	NA	NA	NA
Net-Net Value	NA	NA	NA	NA	NA
Liquidation Value Estimation	-	NA	NA	NA	NA
Enhanced MOS-Model	-	NA	NA	NA	NA



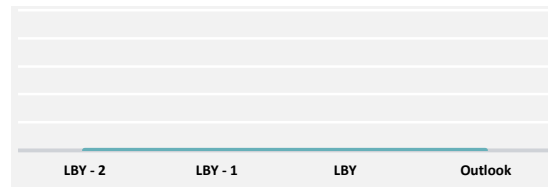
FCF Growth Estimation

Calculation of FCF Growth - based on regression of last 3 years and NI outlook:

	FCF	[YoY]
LBY - 2	-	#DIV/0!
LBY - 1	-	#DIV/0!
LBY	-	#DIV/0!

Outlook - #DIV/0!

Calculated Groth L3Y : NA



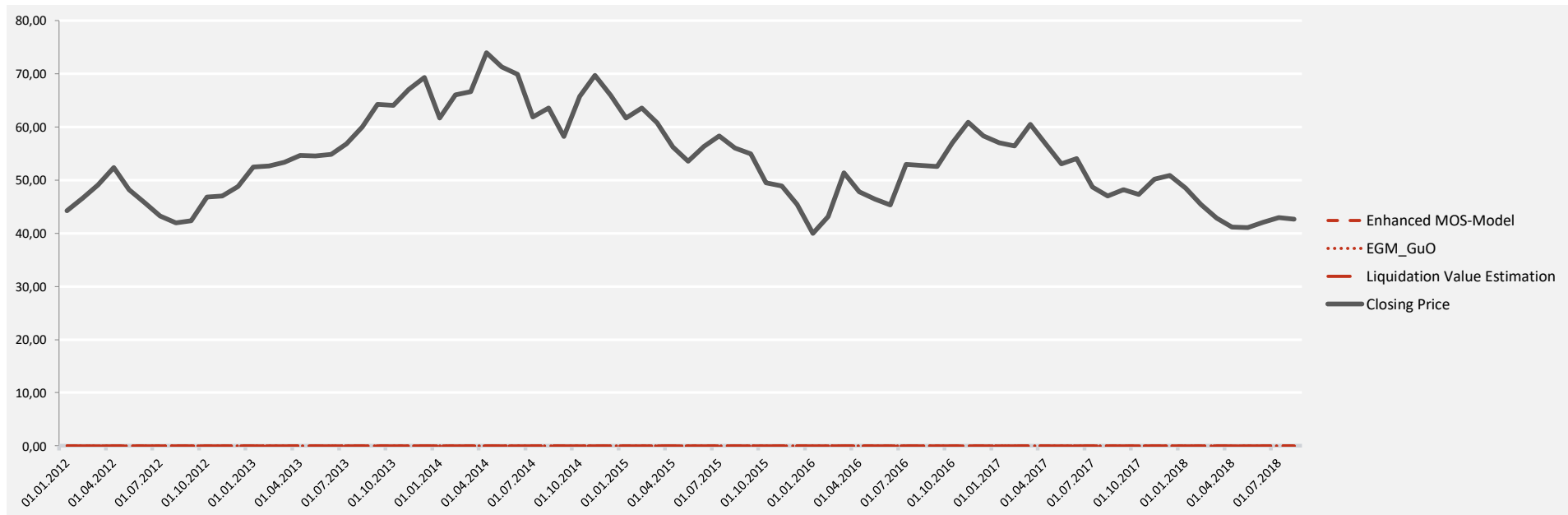
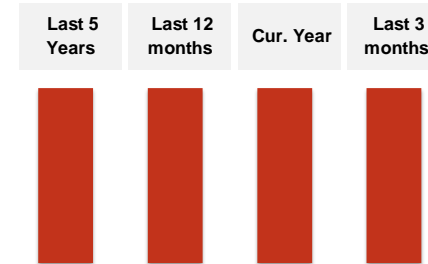
Price & Value Evolution

Name #CIQINACTIVE
 Ticker NYSE:HOG
 Currency #CIQINACTIVE

20.02.2019

Price Record

		Low	High	Current Price to Historical Price Range
Current Price	#CIQINACTIVE			
Closing 3 m ago	#CIQINACTIVE	x	x	NA
SIGMA = Volatility last 3 months	1,13			
Last 3 months	#CIQINACTIVE	#CIQINACTIVE	NA	
Cur. Year	#CIQINACTIVE	#CIQINACTIVE	NA	
Last 12 months	#CIQINACTIVE	#CIQINACTIVE	NA	
Last 5 Years	#CIQINACTIVE	#CIQINACTIVE	NA	
#CIQINACTIVE-#CIQINACTIVE - View	#CIQINACTIVE	#CIQINACTIVE	NA	



Selected Source:

S&P Capital IQ

Margin Of Safety & Buy and Sell Strategy

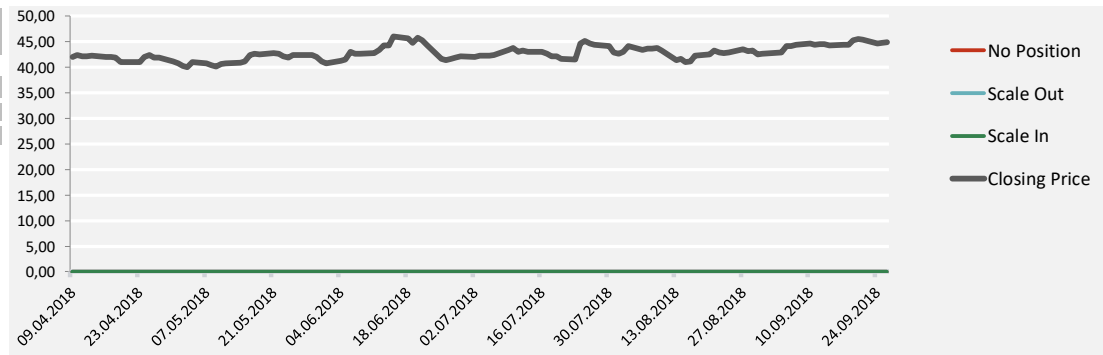
Method	Intrinsic Value	Adjustments User-Input	
Adjusted Present Value DCF-APV	NA		Comment: use 'x' if indiv. per share value shall be recognized in
Simplified DCF-20-Yr	NA		
Simplified DCF-10-Yr	NA		
Earning Power Value DCF-EPV	NA		
DCF-GuO	NA		
Economic Profit Value	NA		
EGM-GuO	NA		
Intrinsic Value B. Graham	NA		
Book Value	NA		
Adjusted Book Value	NA		
DDM-GuO	NA		
Net-Net Value	NA		
Liquidation Value Estimation	NA		
Enhanced MOS-Model	NA	x	

Intrinsic Value	NA
Margin of Safety (MOS)	NA

Position Monitoring & Adjusting	Adjustments		Price-Trigger
	Default	User-Input	
No Position	#WERT!		#WERT!
Scale Out	100,0%		#WERT!
Scale In	#WERT!		#WERT!

Comments: For MOS calculation, we use Kenton K. Yee's (Columbia Business School) model from 2008; confidence intervalls are calculated based on sigma of price and bookvalue.
In Between = Scale In Scale Out

Position Signal	NA
Scale In Signal	NA



Name #CIQINACTIVE
 Ticker NYSE:HOG
 Currency #CIQINACTIVE

Altman Z-Score

Definition

The Z-score formula for predicting bankruptcy was published in 1968 by Edward I. Altman. The formula is used to predict the probability that a firm will go into bankruptcy within two years. Z-scores are used to predict corporate defaults and an easy-to-calculate control measure for the financial distress status of companies. The Z-score uses multiple corporate income and balance sheet values to measure the financial health of a company. The Z'-Score (Altman 2005) is used, as it is less dependant on the industrial sector and also valid for non-manufacturer industrials and emerging markets. According to statistical tests the overall accuracy is 76,6%.

$Z''\text{-Score} = 6.56 \cdot X1 + 3.26 \cdot X2 + 6.72 \cdot X3 + 1.05 \cdot X4 + 3.25$

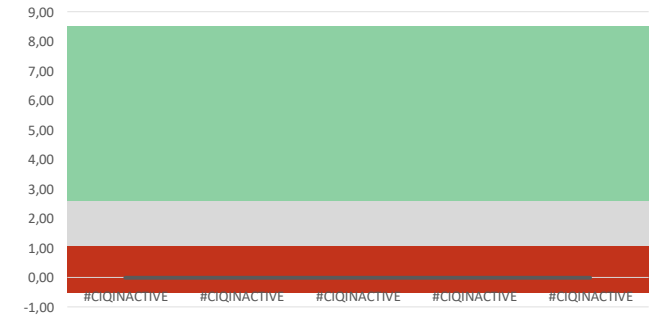
- X1 = (Current Assets-Current Liabilities) / Total Assets
- X2 = Retained Earnings / Total Assets
- X3 = Earnings Before Interest and Taxes / Total Assets
- X4 = Book Value of Equity / Total Liabilities

Zones of Discrimination:

- Z" > 2.6 - "Safe" Zone
- 1,1 < Z" < 2,6 - "Grey" Zone
- Z" < 1.1 - "Distress" Zone

	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE
Z"-Score	NA	NA	NA	NA	NA

Z''-Score



Ohlson O-Score

Definition

The O-Score formula for predicting bankruptcy was published in 1980 by James A. Ohlson. The formula initially used 9 parameters to predict the probability for bankruptcy within one year. For large companies, we use the original O-Score model, for small companies with assets below 130 mio \$, we use the modified O'-Score from He, Kamath, Meier (Jan 2005) with 8 parameters. According to statistical tests, the accuracy was 86% for large companies and 90% for small companies.

SME-Company

$$NV' = -4.45 - 7.62 \cdot X1 + 7.19 \cdot X2 - 1.17 \cdot X3 - 0.22 \cdot X4 + 0.18 \cdot X5 + 0.07 \cdot X6 + 3.42 \cdot X7 + 2.11 \cdot X8$$

$$O\text{'-Score} = 1 / (1 + \exp(-NV'))$$

-
- X1 = NetIncome / Total Assests
- X2 = Total Liabilities / Total Assets
- X3 = (Current Assets-Current Liabilities) / Total Assets
- X4 = Current Liabilities / Current Assets
- X5 = EBITDA / Total Liabilities
- X6 = (NI t - NI t-1) / (|NI t| + |NI t-1|)
- X7 = 1 if total liabilitis > total assets; 0 otherwise
- X8 = 1 if NI was negative for the last 2 years; 0 otherwise

Large Company

$$NV = -1.32 - 0.407 \cdot X0 - 2.37 \cdot X1 + 6.03 \cdot X2 - 1.43 \cdot X3 + 0.076 \cdot X4 - 1.83 \cdot X5 - 0.521 \cdot X6 - 1.72 \cdot X7 + 0.285 \cdot X8$$

$$O\text{-Score} = 1 / (1 + \exp(-NV))$$

- X0 = log of Total Assets
- X1 = NetIncome / Total Assests
- X2 = Total Liabilities / Total Assets
- X3 = (Current Assets-Current Liabilities) / Total Assets
- X4 = Current Liabilities / Current Assets
- X5 = EBITDA / Total Liabilities
- X6 = (NI t - NI t-1) / (|NI t| + |NI t-1|)
- X7 = 1 if total liabilitis > total assets; 0 otherwise
- X8 = 1 if NI was negative for the last 2 years; 0 otherwise

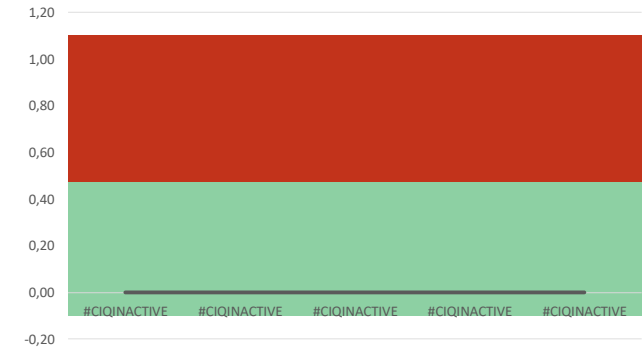
Zones of Discrimination:

O-Score < 0.5: low probability of bankruptcy

O-Score < 0.472: low probability of bankruptcy

	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE
O-Score	NA	NA	NA	NA	NA

O-Score



CHS - Score

Definition

The CHS model was developed by a Harvard team - John Y. Campbell, Jens Hilscher and Jan Szilagyi - in 2010 as accounting and market-based measures, forecasting the likelihood of future financial distress. Based on further analysis of S. Mansi and W. Maxwell (2010) comparing several well known scores, the CHS Score has the greatest explanatory power. Followed by Martons DD - Score, than the accounting-based measures O-Score and finally the Z-Score. Here we use an adapted version based on latest linear regression from A. Schnell in Feb 2014.

$$NV' = -0.7653 + 0.1029 \cdot NIMTA_{avg} + 0.1200 \cdot TLMTA - 0.0457 \cdot CASHMTA - 0.4983 \cdot EXRETA_{avg} + 0.0017 \cdot SIGMA - 0.1126 \cdot RSIZE + 2.7885e-06 \cdot MB - 0.0265 \cdot PRICE_{log}$$

NIMTA_{avg} = Weighted average of NI / market total assets

TLMTA = Total liabilities / market total assets

CASHMTA = short-term liquidity / market total assets

EXRETA_{avg} = equity return / S&P 500 index return

SIGMA = Volatility last 3 months

RSIZE = firms equity capitalization / total S&P500 mkt cap

MB = market equity / book equity

PRICE = log of the stock price, capped at \$15

Zones of Discrimination:

CHS-Score < 0.602: low probability of bankruptcy

CHS-Score

#WERT!
#WERT!
NA

Beneish M-Score

Definition

The M-Score was created by Professor Messod Beneish 1999 to detect earnings manipulations. Based on a combination of the eight different indices Beneish found that the M-Score could correctly identify 76% of manipulators, whilst only incorrectly identifying 17.5% of non-manipulators.

$$\text{M-Score} = -4.84 + 0.920 \cdot \text{DSRI} + 0.528 \cdot \text{GMI} + 0.404 \cdot \text{AQI} + 0.892 \cdot \text{SGI} + 0.115 \cdot \text{DEPI} - 0.172 \cdot \text{SGAI} + 4.679 \cdot \text{TATA} - 0.327 \cdot \text{LVGI}$$

DSRI = Days Sales in Receivables Index (measured as the ratio of days sales in receivables in year t to year t-1). A large increase in DSRI could be the result of a change in credit policy to spur sales can be indicative on revenue and earnings inflation.

GMI = Gross Margin Index (measured as the ratio of gross margin in year t-1 to gross margin in year t). If gross margin has deteriorated it is more likely to manipulate earnings.

AQI = Asset Quality Index (asset quality is measured as the ratio of noncurrent asses other than PPE to total assets). AQI is the ratio of asset quality in year to year t-1. If AQI > 1 indicates that the firm has potentially increased ist cost deferrals.

SGI = Sales Growth Index (ratio of sales in year t to t-1). Sales growth is not itself a measure of manipulation but puts much pressure on the management to achieve earning targets and thus, are more likely to manipulate earnings.

DEPI = DEpreciation Index (measured as the ratio of the rate of depreciation in year t-1 to t). A DEPI>1 indicates that assets are being depreciated at a slower rate. This suggests that the firm might be revising useful asset life assumptions upwards, or adopting a new method that is income friendly.

SGAI = Sales, General and Administrative expenses Index (the ratio of SGA expenses in year t to t-1). A disproportionate increase in SG&A is seen as negative signal about a companies future.

LVGI = Leverage Index (the ratio of total debt to total assets in year t to t-1). A LVGI >1 indicates an increase in leverage.

TATA = Total Accruals to Total Assets (total accruals calculated as the change in working capital accounts). Indicate a discretionary accounting choice to alter earnings.

Zones of Discrimination:

If M-Score > -2.22, firm is likely to be a manipulator.

	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE
M-Score	NA	NA	NA	NA	NA

M-Score



Earnings' Quality

Definition

Various research literature show that investors do not use current earnings accurately to estimate future earnings (Bernard & Thomas, 1990; Sloan, 1996). They fixate on earnings and ignores the information content of its components: the accruals and operating cash flows. Studies indicate that there is negative correlation between the magnitude of accruals of current earnings and future stock returns, and a positive correlation between cash flow and future returns.

Accruals Ratio

We use the cash flow based calculation of accruals (see Kraft [2005]) scaled by average total assets to make them comparable.

$$\text{Accruals Ratio}_t = \frac{NI_t - \text{Cash from Operations}_t}{\text{avg Total Assets}}$$

Percent Accruals Ratio

As defined at Hafzalla [2011], the "Percent Accruals Ratio" is a smart way to measure the mispricing of accruals and cash flows as it eliminates the effect of firms with highly negative earnings.

$$\text{Percent Accruals Ratio}_t = \frac{NI_t - \text{Cash from Operations}_t}{|NI_t|}$$

	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE
Net Income *)	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE	#CIQINACTIVE
Accruals Ratio *)	NA	NA	NA	NA	NA
Percent Accruals Ratio	NA	NA	NA	NA	NA

*) Note: As the "Accrual Anomaly" disappears for loss firms, the "Accrual Ratio" may only be applied to profit firms as a meaningful selection criteria for future returns.

