# G33D - Class Note 1

# Financial Statements

Yi Liu (yxl105[at]bham.ac.uk)

https://github.com/YiLiu6240/bham_ECONG33_Regulation-Supervision

February 9, 2017

## Questions One - Six

Please refer to Hull (2012, Chap.2) for the discussions of the activities of banks, the financial statements of banks, and different risks. You need to know how the various operations of a bank are reflected in the different items of the financial statements, and how gains and losses are reflected as well.

## Question Seven

In order to find the "additional" capital to hold, we need to find a value $V$ in the distribution of income so that:

"We will be 99.9% sure that we will not get an income less than V[1]."

[1]See Hull (2012, Chap.9, pp.183-185) for explanations.

Or equivalently,

$$\begin{aligned} Pr(X \leq V) &= 100\% - 99.9\% \\ &= 0.1\% \end{aligned}$$

where $X$ denotes a random outcome in the distribution of $X \sim N(\mu, \sigma^2)$, $\mu = 0.6, \sigma = 2$ with a significance level $\alpha = 0.001$.

So $V$ will be the $0.001^{th}$ quantile ($0.1^{th}$ percentile) value in the specified normal distribution:[2]:

$$\begin{aligned} V &= \mu + Z_\alpha \times \sigma \\ &= 0.6 + (-3.09) * 2 \\ &= -5.58 \end{aligned}$$

Let $C$ be the additional capital level required, and we have:

$$5 + C + V \geq 0, \Rightarrow C \geq 0.58$$

Therefore regulators will require the bank to hold additional \$0.58 million capital

[2] $Z_\alpha = -3.090$ when $\alpha = 0.001$. You need to refer to a statistics book about the transformation between a standardised normal critical value and a normal critical value.

to guarantee that its capital will not be wiped out for 99.9% of the situation.

# References

Hull, John (2012), *Risk Management and Financial Institutions,+ Web Site*, Vol. 733, John Wiley & Sons.