MTH 9845 Risk Management

**Lecture 1**

Ken Abbott: [ken.abbott@barclays.com](mailto:ken.abbott@barclays.com) [abboyykc@gmail.com](mailto:abboyykc@gmail.com)

Prefer to reach by work email

HW Form: HW<<space>><<assignment name>>

1. Ken can review Resume and Cover letter

2. Don’t send zip or rar file

3. Email HW question to his gmail AND work addresses (include the questions)

4. Label your axes

5. Read WSJ and Bloomberg

6. Interview Background reading (Job interview); Reference(recommendation); Cover letter review

7. Take accounting course (Know the bank business, not just quant world)

8. Net worth(NW) = equity=capital; A=asset = NW+morgage

NW /A = leverage A/NW= leverage ratio

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Firm | EQ | Asset | Leverage | Ratio |
| Leman08 | 22 | 641 | 318 | 0.0318 |
| GS08 | 42 | 1120 | 26 | 0.837 |
| GS15 | 87 | 861 | 10 | 0.10 |

9. Dodd Frank

10.Basel

11. Risk management is not risk avoidance

12. EITF 0203

13. Firm risk: Operation risk, credit risk, market risk, model validation, COO(chief operation office), model development

SR 11-7 very important for model validation

14. read financial paper (14 pages)

**Lecture 2**

Exploratory Data Analysis (EDA)

1. For HW code: not use hard-code

2. Always check your data before proceeding (plot, plot 2D figure)

3. PCA is important for interview: estimate PNL, hedge

4. Autocorrelation: 1 to (n-1) compare with 2 to n

5. Plot: Not too much lines in one figure

6. Dual axis plot: select 2nd data set in the figure and chose ‘secondary axis’

7. index function is very useful for creating hundreds similar graphs

8. Skewness: symmetry; Kurtosis: fat tail

9. ALT+R(?): insert row

10. SHIFT+SPACE: select whole row

**ASSIGNMENT: read the 3 chapters posted on the forum**

11. use linear interpolation for missing data (1day): decreasing the volatility

Use the previous day’s data: increase the volatility

If big data: Brownian bridge

If lots correlated data: run regression based fill

If not correlated data: MC simulation fill

Last method: Brownian bridge

**HW: Linear regression in Excel and another one for two weeks**

**Lecture 3**

Introduction to Bonds (fixed income securities)

1.