SCM 651: Business Analytics

WEEK 2

Agenda

Welcome/Polls

Review of concepts

Group discussion of articles

Google Analytics Access

Teams

Homework #1

Wrap up and Feedback

Week 2 - Review

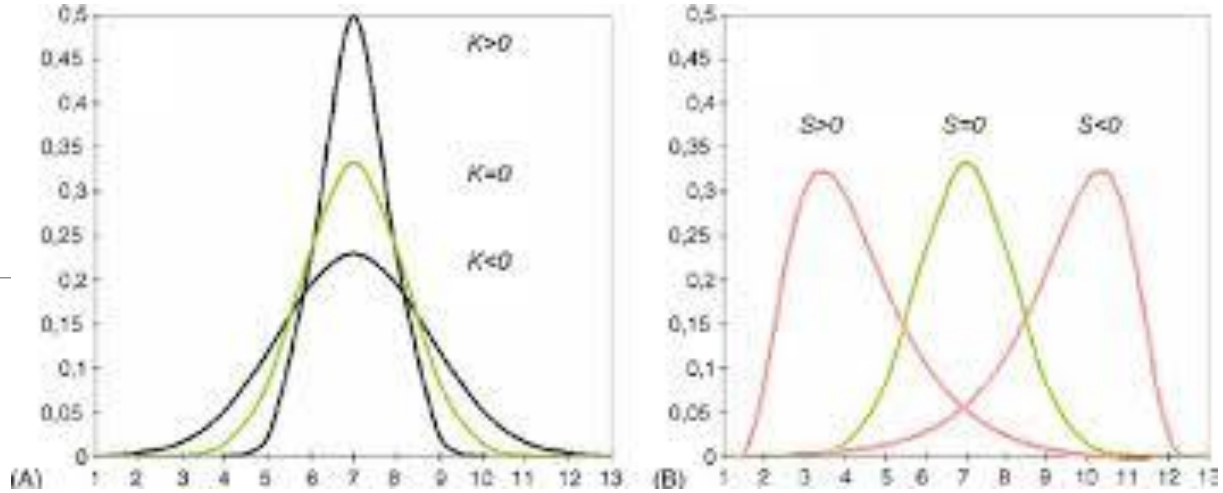
NPV

- Calculates today's value of a cash flow stream
- Investments are entered as negative numbers

IRR

- IRR > interest rate ➔ positive NPV
- IRR < interest rate ➔ negative NPV

Week 2 - Review



Descriptive Statistics

- Mean: arithmetic average
- Median: middle point in distribution
- Mode: most common value (highest frequency of occurrence)
- Kurtosis: height of data peak relative to normal distribution
- Skewness: left or right position of data relative to normal distribution
- Standard deviation: measure of spread
- Range: highest value minus lowest value

Week 2 - Review

Correlation (Section 2.7, card 3)

- Strongest (highest positive or negative correlation): INTC & MSFT = 0.39
- Weakest (closest to zero): CAT & MSFT = 0.08

	Date	CAT	GE	GM	IBM	INTC	MCD	MSFT
Date	1							
CAT	-0.0072	1						
GE	-0.02751	0.164614	1					
GM	-0.01293	0.273675	0.331425	1				
IBM	0.017422	0.204583	0.334578	0.339229	1			
INTC	-0.09191	0.214656	0.287167	0.274235	0.348304	1		
MCD	0.0192	0.22379	0.259242	0.216831	0.240643	0.242705	1	
MSFT	-0.10799	0.089345	0.326099	0.171106	0.316358	0.393519	0.301614	1

Week 2 - Review

Correlation versus regression

- If one variable changes, does the other variable go up or down? (correlation)
- If one variable changes, how much does the other change? (regression)

Week 2 - Review

Regression Example

- Fixed Costs
  - Measured by intercept

} Items either not measured, or not variable

- Variable costs
  - Measured by coefficient of variable

} Items whose variability has a measureable impact on the output

Exponential regression

- Compounded growth

Power regression

- Learning curve or volume efficiencies

Week 2 - Review

Multivariate regression (multiple X variables)

- T-statistics measures the significance of one coefficient (focus on p-values)
- F-statistic measures the significance of the entire equation
- R^2 measures the goodness of fit of the equation, i.e., how much of the change in Y is explained by changes in X

SUMMARY OUTPUT					
Regression Statistics					
Multiple R	0.803398744				
R Square	0.645449542				
Adjusted R Square	0.57453945				
Standard Error	1252.763898				
Observations	19				
ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	42856229.89	14285409.96	9.102365067	0.001126532
Residual	15	23541260.74	1569417.383		
Total	18	66397490.63			
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*
Intercept	35102.90045	1837.226911	19.10645889	6.11198E-12	31186.944
A Made	2.065953296	1.664981779	1.240826369	0.23372682	-1.482871344
B Made	4.176355531	1.681252566	2.484073849	0.025287785	0.592850531
C Made	4.790641037	1.789316107	2.677358695	0.017222643	0.976804052

Week 2 - Review

Seasonality (check answer)

- Periodicity of 4 – quarterly
- Periodicity of 12 – monthly
- Periodicity of 52 - weekly

Article #1: Sustaining an Analytics Advantage

Sustaining an Analytics Advantage

- What are some examples of creating competitive advantage with analytics (companies and their techniques)?

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Sustaining an Analytics Advantage

- What are some examples of creating competitive advantage with analytics (companies and their techniques)?
  - Wal-Mart: keep analytics techniques secret (consumer choice and human resources)
  - ABB: implement analytics fast (customer choice)
  - Procter & Gamble: apply to the right problem (reengineer the supply chain)
  - American Airlines (Sabre): data is more important (schedules)
  - Amazon: become data driven (algorithms)

Article #1: Sustaining an Analytics Advantage

Sustaining an Analytics Advantage

- Analytics does not provide a sustainable competitive advantage
- Analytics capability to change and innovate does provide a sustainable competitive advantage
- Analytics is becoming a competitive necessity; ATM machines were initially a competitive advantage, now are a competitive necessity
  - ATM: Barclays Bank, London, 1967
  - ATM: Chemical Bank, Rockville Centre, New York, 1969

Article #2: Creating Business Value with Analytics

Creating Business Value with Analytics

- What are the differences between competencies in information management and analytics expertise?
- What are the advantages of starting with each?

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Creating Business Value with Analytics

- What are the differences between competencies in information management and analytics expertise?
  - Information management: develop enterprise wide data systems
  - Analytics: developing functional expertise
- What are the advantages of starting with each?
  - Information management: break down cultural barriers, leverage customer focused data (expand sales)
  - Analytics: leverage algorithms to optimize activities (order placement, fulfillment, shipping, delivery)

Article #3: Raising the Bar with Analytics

Raising the Bar with Analytics

- What new opportunities did StyleSeek and Entravision encounter when they used analytics?
- What opportunity allowed MillerCoors to create efficiencies with analytics?

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Raising the Bar with Analytics

- What new opportunities did StyleSeek and Entravision encounter when they used analytics?
  - StyleSeek: sold their technology to partners
  - Entravision: expanded beyond media spots to information services for the Latino market
- What opportunity allowed MillerCoors to create efficiencies with analytics?
  - MillerCoors: applied analytics to identify efficiencies with the joint venture

Google Analytics, Team Formation

Google Analytics

- Generic account set up – see course wall for details.
- Backup plan:
  - Set up a Google account using your syr.edu email address, following the instructions distributed to course wall
  - You will receive an email when your access is authorized if needed

Teams

- Review teams posted to course wall – these will be your teams for the homework assignments this semester

Upcoming assignments

1. Homework –

Homework #1, Regression, due before live session #4

2. Hands-on:

Excel: One-way Sensitivity Analysis, Two-way Sensitivity Analysis, Conditional Formatting, Dashboards

Google Analytics: Audience, Acquisition, Behavior

Complete before our next live session