BYGB 7988 Business Performance Management Risk Analytics

Section 2

Exam 1

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Question 1.

3 Pillars of BSI's Global Growth Strategy and associated risk:

- Geographical diversification in more dynamic emerging markets such as Singapore
  - 2000s - Asia was the fastest-growing private banking market in world with most high net worth individuals (HNWIs)
  - Risk: Restructured organization for each geographical region with overhead of bank's strategy, but with variance in services and cross-border banking, auditing, and tax regulations
- Development of specialized service models for specific client segments
  - 1990s - restructured specializing in wealth management for HNWIs, but faced a declining market for services in Switzerland
  - Risk: rapidly increased capacity of BSI Singapore over 5 years from 2009-2015 (employees 30 → 200) to increase profitability
- Increased operating efficiency along with strict risk control and capital management
  - Not inherently risky, but clear there was no strict risk control when top management ignored issues regarding 1MDB laundering

(Q1)

Role of risk analytics in mitigating risk:

- *Strategic risks*: using competitive analytics and machine learning (random forest)
  - Utilize: internal and external data for auditing, pulling data across the organization into one central platform, helping create a truly enterprise-wide approach
- *Preventable risks*: using predictive analytics
  - Measure: new regulatory requirements in each country, train statistical models to identify high risk cases/clients automatically
- *Environmental Risks*: using natural-language processing or geospatial analysis
  - Monitor: social media for suspicious activity from clients, government intervention, natural disasters, political reform or macroeconomic shifts in home or client country

Question 2.

BSI challenges in Asia:

- Asian private banking industry was crowded and very competitive, saturated with HNWIs
- Wanted to keep up with growing wealth in Asia, so for BSI's investment and corporate banking services they allied with smaller corporate investment organizations
    - For leverage/capital protection products - used third-party products to avoid the time-consuming procedure needed to create their own
- Diversity of Asian culture required responding to client demands with unique strategic responses through recommendations, trades, and transactions, while client carried majority of risk
- Challenging for BSI auditors due to differences in available data, technology and analytical competency in each region

(Q2)

Analytical role in identifying BSI's challenges:

- Text Analytics: identify fraud early, implement natural language processing algorithms to find expressions of names, times, companies, and monetary values through search, content categorization and entity extraction
- Geospatial Analytics: Combine internal/external data by overlaying external map data on top of BSI's operations and third party allies to reveal a map of fraudulent activities or gaps in oversight
- Risk Analytics: Apply unsupervised machine learning to examine data without fraud or uncover anomalies,patterns of interest, or potential risks
- Network analysis: Identify paths, connections and hubs that reveal patterns and social networks of interest such as amongst accounts for one sovereign government entity

How Predictive analytics could have avoided BSI's challenges:

- By applying supervised machine learning algorithms, BSI could learn from historical data and identify patterns of interest such as a client's propensity to launder money
  - It could have reduced manual audit cycles to increase time for more meaningful analysis
  - Could query data from Malaysian government statistics to forecast the increasing political risk of fraud, and monitor early on the lack of transparency for purpose of transactions

Question 3.

Types of Risks banks such as BSI Face:

- Fragmented regulatory and compliance change management or risk methodologies between countries
- Lack of compliance risk management strategic vision
- Lack of clarity and engagement with front line units
- Resource and staffing challenges when trying to cut operating or personnel costs
- Weak governance and oversight (due to third party actors)
- Ineffective coordination across different branches

(Q3)

How Analytics can prevent risks:

- Identify: use a compliance analytical tool to monitor payments for exceptions and unusual activity
  - Improve risk monitoring in real time and uncover early warning signs within client activities and country's political/economic developments
- Model: Can help clients recover their savings by reducing duplicate payments and score their behavior in real time to avoid risks
- Evaluate: Can help internal/external auditors increase audit quality, work more efficiently and potentially reduce risk costs by working with entire dataset of clients rather than a sample
- Mitigate: Can "close the loop" by identifying problems, and implementing sustainable changes in the internal control environment for future prevention
- Prevent: Can provide an enterprise-wide approach using past insights from similar clients and current market metrics to more accurately measure risk and identify fraud

Question 4.

Pitfalls of BSI's business model execution:

- 2014 - The *operational excellence program* increased profitability/competitiveness in long-run by reducing operating and personnel costs
  - Relationship manager pressured to outsource complex requests to specialists who had the digital tools needed to meet clients banking demands
  - Monetary Authority of Singapore (MAS) found issues with BSI's due diligence checks on assets underlying the investment funds structured for clients
- 2015 found multiple breaches of anti-money laundering regulations and non-compliance → MAS revoked BSI merchant banking license in Singapore
- Switzerland's attorney general found serious shortcomings in identifying erroneous transactions involving millions of dollars linked to business relationships with politically exposed persons
  - Wanted sovereign banks as clients but failed to question how the assets were being invested, and charged the client excessive market rates for its institutional services
  - Fraudulent transactions between the 1MDB client group were overlooked by BSI top management

(Q4)

How Financial Crime Analytics could have avoided BSI's pitfalls:

- By obtaining data from multiple, high quality sources and normalizing it based on their region or client group, managers could create a holistic risk score, mitigating the risk of money laundering
- Exploratory analysis - detecting outliers/clustering would avoid top management's ability to ignore risky transactions from 1MDB
- Predictive modeling - machine learning, regression analysis, decisions trees, neural networks to classify risks
- Social network analysis - to identify relations of a particular set of actors/customers such as 1MDB and uncover whether they were laundering or truthfully investing assets
- To make fast, on-target decisions to reduce monetary, reputational, and compliance risks of fraud and money laundering
    - Especially to cater to their high net worth clientele using a statistical baseline to monitor behavior that may be more extravagant then normal

Question 5.

<u>How local compliance lapse crossed geographical boundaries</u>:

- With 1MDB as a client to BSI Singapore, they were misappropriating funds from state companies in Malaysia
- BSI is a Switzerland based bank, so the Swiss Financial Market Supervisory Authority (FINMA) conducted a criminal investigation related to 1MDB, exposing BSI
- The Monetary Authority of Singapore's investigation uncovered many lapses in due diligence checks on assets and money laundering instances
    - Then they could not take advantage of HNWI clients in Hong Kong either
- Ultimately there were 6 countries around the world investigating the misappropriation of funds from 1MDB in Malaysia

(Q5)

How compliance analytics could mitigate/prevent BSI's situation:

- Machine learning models can parse large datasets and spot fraudulent transactions while monitoring transactions in real-time to identify gaps, issues and trends in financial crime
- Natural Language Processing algorithms can search for patterns/combinations to predict suspicious behavior among 1MDB's explanations for questionable transactions
- Use social network analysis to review the 100 accounts associated with 1MDB to uncover fraudulent relations between actors, and evaluate statistics to find the nature of the relations to uncover financial crime networks
- Can apply entity analytics using bank data, external sources such as social media and the internet to holistically regulate 1MDB's accounts to raise red flags earlier
- Visualization tools reveal trends and patterns by drilling down the root of the fraud, while allowing a story to emerge that compliance managers can see more clearly