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Amarcord Inc: Combating Money Laundering Using Data Analytics

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Case Study Analysis

Amarcord Inc: Combating Money Laundering Using Data Analytics

Submitted to fulfill Honors course requirement for

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Abstract:

This case study of Amarcord Incorporative will be discussing how Amarcord combats money laundering using data analytics. With the addition of new laws from 1970-current, it is harder for money laundering to be committed due to the requirement of reports and bank inspections. Using data analytics techniques such as the time-series analysis, we can analyze data sets to look closer and tell what transactions are money laundering, and what are actual ones.

Keywords; Data analytics, Amarcord Incorporative, Money Laundering

1. Introduction

1.1 Money laundering is a growing problem in the bank industry, due to the increasing rate of practices such as drug trafficking, illegal gambling, arms trafficking, and bribery. Laws have been established to regulate money laundering to ensure that banks comply with the regulations. As a regional bank, Amarcord Inc is noticing an increase in money laundering activities. The Office of the Controller of the Currency (OCC), an independent bureau within the US. Department of Treasury examines banks to ensure that they are prepared to combat money laundering through the use of the AML. In this Case Study, I will be designing and following out with ways to analyze Amarcord's data set to decide if the company is participating in money laundering.

1.2 Money laundering is an issue due to criminals using normal proceeds of a company to disguise income that is seemingly earned lawfully. It is crucial to organized operations since if not everyone is in on it, it would be a lot easier to catch. Banks are supposed to perform checks and monitor transactions so that accounts aren't being used for money laundering.

1.3 With the addition of the USA Patriots act, many new efforts are being put into play in order to better determine if money laundering is being committed by making it easier to see the trail of money. According to my findings, Amarcord Inc. is definitely participating in money laundering.

1.4 In this case study, I will be defining money laundering, and acts and regulations that are put in place in order to stop it. I will also analyze Amarcord Inc.'s Data set by using types of data analytics such as time-series analysis. After that, I will discuss my results. Throughout this, I will try to reference similar cases that have been involved in money laundering.

2. Literature

2.1 Money Laundering: Money laundering is the process in which companies conceal the origins of their illegally obtained money. Illegal sources of income are typically from countries where individuals are not compliant with the money-laundering laws. There are 3 stages in money laundering; placement, layering and integration.¹ Placement is the introduction of cash into the financial system, layering makes it harder to figure out where the money is coming from; in this step money will typically be moved around a lot, and integration is the wealth that is generated from the transactions.

A criminal organization can use a legitimate cash-based business to launder money. Amarcord incorporative is monitoring Cash Intensive Businesses transactions using services from the bank. They also look at indicators such as money transmitters and exchanges. Smurfing, where different accounts are opened with small deposits made to avoid detection are used. Also, wire transferring and currency exchange is used.

Money launderers use companies to hide their illegal activities and to avoid detection. Companies on the deal have a lower market rate for their products while still making a profit. Since they get more customers, they have an advantage over true companies. Money laundering leads to revenue loss. They harm honest taxpayers.

2.2 One approach used to prevent money laundering is risk-based approach. The risk-based approach ensures that measures are put into place to mitigate money laundering.² In order

¹ <https://www.unodc.org/e4j/en/organized-crime/module-4/key-issues/money-laundering.html>

² http://www.antimoneylaundering.gov.ie/en/AMLCU/Pages/Risk_Based_Approach

for a risk-based approach to be used, you need to recognize the risk, assess it, and develop strategies to mitigate the risk.

In 1970, the Bank Secrecy Act was enacted requiring businesses to keep their own records and report any accounts that could be a result from money laundering.³ Since banks were now keeping records, unless everyone was in on the deal, it is harder to hide the excess of money. This also makes it easier to find out the source of the money, and who is participating in the act. While this is the main act, other smaller ones were created to aid in enforcement and have the most effective tools.

In 1986, the Money laundering control act was put into play stating that if you know that the property involved in a transaction is illegal, with the intent to participate in illegal action, you shall be punished under criminal penalties.⁴

In 1992, the Annunzio-Wylie Anti-Money Laundering Act was written to require verification and recordkeeping for wire transfers.⁵

In 1994, the money laundering suppression act was enacted which required banks to add additional training and develop anti-money laundering procedures. Each money service business had to be registered properly, if not it is considered to be a crime.⁶

In 1998, the money laundering and financial crimes strategy act was enacted for examiners in banks to come up with anti-money laundering training. The treasury created an agenda to try to stop money laundering.⁷

However, the biggest regulation created to try to curb money laundering is the USA Patriot Act of 2001. In section 301, they talk about the International Money Laundering Abatement and Financial Anti-Terrorism act which summarizes that money launderers use the blindness of banks to commit money laundering and they commit transactions that make it difficult for law enforcement to follow the trail of money. Anti-money laundering efforts are beginning to be put into effect. Banks now have to consider a bank's anti-money laundering record when viewing anything that requires a banks approval.⁸

³ <https://www.irs.gov/businesses/small-businesses-self-employed/bank-secrecy-act>

⁴ https://www.ffiec.gov/bsa_aml_infobase/documents/regulations/ml_control_1986.pdf

⁵ <https://www.fdic.gov/regulations/examinations/bsa/basics2.html>

⁶ <https://www.fincen.gov/history-anti-money-laundering-laws>

⁷ <https://www.fincen.gov/history-anti-money-laundering-laws>

⁸ <https://www.fdic.gov/regulations/examinations/bsa/patriot-act.pdf>

2.3 Data Analytics is the process of examining data sets in order to draw conclusions about the information they contain with the help of tools.

Due to the large size of Amarcord Incorporative, it is hard to screen data from a variety of locations at the same time. One reason why they need to use data analytics is to gain competitive advantages. Also, they need to stay compliant with the AML so they can continue to be monitored and have their transactions screened. This will improve the detection of money laundering activities occurring inside the bank.

Amarcord Incorporative needs data analytic approaches in order to review the nature of business activities and financial relationships that could possibly be doing money laundering. The bank needs to improve its system that tracks spending habits and transactions. They should also create a profile for their big customers. They also need a system in case the government wants to check up on them.

Corruption Network is when Many money launderers use colleagues or family members since they are trusted. Also, people are used who pay little attention to the financials.

Crime period is The money laundering crime period occurs during every time someone new goes into a new position.

Bank Transactions are suspicious when they are Large cash deposits and withdrawals. Large amounts of money are deposited often, and the authorities should be notified if it's a drastic increase.

Suspicious entries are found when Money launders use authorized signatures for unauthorized uses in order to carry out their activities.

Nature and Structure of Received Data The data produced from all of the locations - whether physical or not, is unstructured data - chunks of info are collected at a rapid pace. Nature at which the data is received requires appropriate solutions. If you use advanced technology, you can capture the large amounts of data.

Modeling and Forecasting Strategies: The company should create a leadership team with good decision-making skills that can work together as a team. Brainstorming and naive forecasts are cost-effective strategies. Naive forecasts are an estimating technique in which the last period's actuals are used as this periods.⁹

⁹ www.monash.edu/business/marketing/marketing-dictionary/n/naive-forecasting

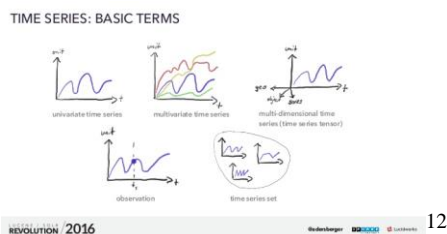
Global trends and implications of money laundering - Money laundering accounts to be approximately 4% of the world's GDP, or roughly 1.5tUSD.

Some other approaches people use to detect fraud are by using artificial intelligence and knowing your customers. By using artificial intelligence, you can teach a system to flag anything out of the ordinary and apply this knowledge to new data, and also look for abnormalities. You can teach your system to create and use rules to determine if data is valid, and how to run database queries to automatically search and locate data using key terms and numbers without the use of the human intervention.

There are 5 steps in the data analytics lifestyle - strategy, identifying key areas, targeting data, collecting and analyzing data, and turning insights into action.¹⁰ Data Mining is the process of discovering patterns in a large database. The goal is to extract information from this data set based on objectives set up by the company.¹¹

With technology constantly growing and getting better, you need to be able to get and analyze data to make your business more successful. If you don't have a goal, then you don't know what you want the outcome to be after the work is done. Once you focus in on what you want, you need to look at the data set and see what areas you need to focus in on. Then once you have the data, you want to make sure you are keeping your objectives in mind while looking at the main goal of your project. In Amarcord's case, you want to determine which values are determined to be money laundered.

2.4 Time series analysis is also used to monitor internal databases. Time Series analysis comes up with a model that is used to forecast and give feedback of data. In Amarcord's case, it will analyze the data and try to figure out if the data is part of money laundry or not.



3. Data analytical approach (data model) and analysis of Amarcord Dataset

¹⁰ www.sisense.com/blog/5-steps-to-data-driven-business-decisions/.

¹¹ <https://www.ibmbigdatahub.com/infographic/5-steps-big-data-and-analytics-success>

¹² <https://www.slideshare.net/QAware/time-series-analysis-67281407>

3.1 data set

Amarcord is a \$40 billion asset regional bank holding company located in New Orleans, Louisiana. They were founded in 1951 as the Amarcord Trust Company. In the beginning, they mainly did commercial banking services and had a small market area. Within a decade, after they moved locations, they expanded their operations and started to serve more businesses. Presently, they provide consumer banking, mortgages, equipment leasing, wealth and investment, trusts, and brokerages. They have over 250 locations and 900 ATMs in four states - Louisiana, Texas, Arkansas, and Mississippi. They have a niche market with auto dealerships.

The problem revolves around compliance of Amarcord Incorporated with the addition of anti-money laundering laws. According to the AML, banks need to be regulated and have effective systems in order to detect fraud. Amarcord Incorporative has failed to notice money laundering due to not having a system that detects fraud. They do not have modern analytic tools and could lose their reputation.

This proposal is trying to come up with the best and up to date way to detect and prevent money laundering at Amarcord Incorporative through the use of data analytics, while staying competitive and being in compliance with the government. In 2001, the USA PATRIOT ACT was created stating that all institutions must establish programs for anti-money laundering by strengthening the measures to detect, prosecute and prevent money laundering.

The AML Chief Compliance Officer (CCO), Leonard Peterson, is aware that without having a detection system, some money laundering activity might occur in the company. While monitoring customers, they have noticed that a U.S. chain of stores selling swimwear, has discrepancies in its money wire transfers, which are significantly higher than the swimwear industry average.

The staff of Amarcord bank is the obstacle that has prevented anything from being done. The staff doesn't want to be compliant. Upper management doesn't seem to notice what is going on. They need to start making changes now in order to convince them that it is for the better.

3.2 The data model that I decided to use to help with time series analysis is exponential smoothing. I decided to use exponential smoothing since it assigns a smaller weight to the older months, with more emphasis on the recent months. Exponential smoothing evens out the time series analysis. I did not use linear regression since the monthly transactions were not consistent each month, and I did not use the AMIRA technique, since it results in a greater chance of an

error. Forecast accuracy is typically calculated by using other computing methods such as Mean Absolute Percentage Accuracy, but there is an issue when using seasonal items, resulting in it being inaccurate if sales are much higher or lower than the forecast.

3.3 results of analysis

I found out what types of transactions are money laundering by looking specifically at the november transactions. By using excel's left, right, and find, I was able to identify different variables to find out information about the transactions. By using find, I could tell that each transaction was coded with a \$ and then either inc, or out, specifying what type of transaction it was. Also, I was able to identify that each transaction had 15 characters before the 3 digit transaction coder. The third variable, for a cancelled transaction, is \$c. I created a formula that made it so I only saw the identifier using the left and right. If a transaction was cancelled, that code was at the 20th character. I then analyzed the correlation between incoming, outgoing, and cancelled transactions. After that, I made a table with the columns being the inc/out, and cancelled. I was able to filter out all of the ones that weren't cancelled, and the result was the incoming cancelled fraud transaction! According to my findings, over 7000 incoming transactions were cancelled.

In the data set, there is a lot more outgoing transactions rather than incoming. This would make sense since in a swimsuit company, you have to buy fabric, assemble swimsuits, and pay workers. Most people only buy swimsuits once in a while, and could use the same one for multiple years. Only 650 transactions are cancelled, so not a lot in the grand scheme of things. For every incoming transaction that is cancelled, there is also a non cancelled incoming transaction for the same price.

There are some types of seasonality in the dataset. Most years had the greatest number of sales during the summer months. This makes sense, since the summer weather is a typical time to go swimming in. Also, towards the end of the summer, sales increase, due to markdowns of the swimsuits to reduce inventory.

4 Findings and discussions

Money laundering is a growing problem in the bank industry, due to the increasing rate of practices such as drug trafficking, illegal gambling, arms trafficking, and bribery. Laws have been established to regulate money laundering to ensure that banks comply with the regulations.

As a regional bank, Amarcord Inc is noticing an increase in money laundering activities. With the addition of the USA Patriots act, many new efforts are being put into play in order to better determine if money laundering is being committed by making it easier to see the trail of money. The exponential smoothing approach that I used would probably not be the best for a larger company, due to it being time consuming, and not 100% accurate. If the time series pattern of this account changes in the future, I most likely won't be using the same approach to flag the potential money-laundering transactions due to findings discussed above. According to my findings, Amarcord Inc. is definitely participating in money laundering.

5. References

<https://www.unodc.org/e4j/en/organized-crime/module-4/key-issues/money-laundering.html>
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