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EXECUTIVE SUMMARY

Scope and Background: Scalapay is a prominent Buy-Now-Pay-Later (BNPL) platform that caters for the European market. BNPL is a relatively new form of payment that enables customers to receive a product or service immediately and pay for its cost in monthly instalments. The challenge put forward is to make Scalapay's lending practices more fair to ensure that customers do not find themselves in financial trouble and at the same time still encourage them to utilise the benefits of Scalapay's BNPL service. The main focus to overcoming this challenge was identifying customer segments and utilising data to guide whether Scalapay's purchase decision process should or not approve that customer's purchase.

Method: Microsoft PowerBI was used to analyse the relationship between various variables and how they affected the rates of default. The variables analysed were age, order amount, merchant category, payment type, and region. Findings show that millennials (aged 25 - 40 years old) were the most predominant age group in Scalapay in terms of the amount they spent on products. However, Generation Z (aged 14 - 24 years old) had the highest default rate at 19% and their likelihood of defaulting was 1.71 times more than the average. Generation X (aged 41 - 55 years old) were the second largest customer group for Scalapay in terms of order amount and they have the third highest default rate at 8%. Older generations such as Baby Boomers (aged 56 - 73 years old) had the lowest rate of default at 5% and the Silent Generation (aged 74 - 95 years old) were slightly higher at 8%. Research indicates that the reason for this occurrence is that older generations are not greatly influenced by changing trends as opposed to younger generations and their financial literacy and sense of responsibility are typically greater as well. The most popular products bought by Scalapay customers were fashion, electronics, sport, beauty, and home and garden. The merchant categories that Scalapay customers defaulted on the most were electronics, jewellery and watches, home and garden, and fashion. It was found that when customers bought electronic products they were 2.13 times more likely to default over the average for the merchant category. The products which Scalapay customers least defaulted on were food and beverage at 3% closely followed by both health and beauty which only had a 5% default. The payment type which had the highest rates of default was prepaid card where it was 2.65 times more likely to default over the average. It was also the most predominant payment type used by Scalapay customers. Payments via credit card had the lowest rates of default at 3% and it was the second most used payment method. Order amount was also individually analysed by dividing it into three different levels, low order amount for purchases below €500, medium order amount for €500 - €1000, and high order amount for purchases greater than €1000. Findings showed that Scalapay customers predominantly use the service for products below €500 and used it least for high order amounts. However, purchases above €1000 were found to have the highest default rate at 35% and with the probability of 3.52 times more likely to default over the average. Analysis between order amount and region showed that customers from Lombardia spent the greatest amongst all regions while Valle d'Aosta was the least. Valle d'Aosta also had the highest default rate at 17% followed by the southern regions Calabria and Campania which were both at 16%.

SUMMARY

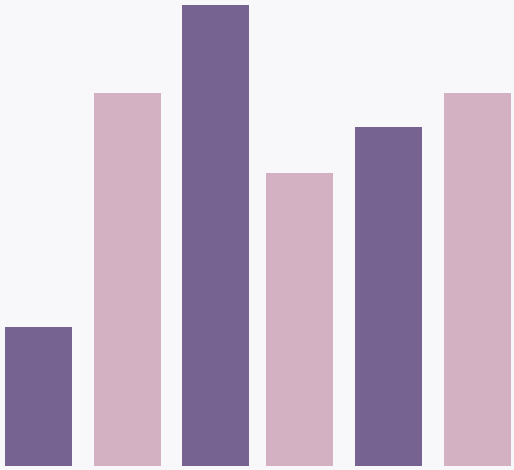
Finding: On the basis of the findings found through the analysis of Scalapay's dataset. A set of heuristics has been created for all customer segments identified. It is recommended that Scalapay takes into consideration the multiple customer segments a customer belongs to before deciding whether or not they should decline or approve a customer's purchase. Since there is a high default rate for customers who belong to Gen Z, purchase electronics and jewellery and watches, use a prepaid card, and orders above €1000. Then Scalapay should decline the customer's request to prevent them from getting into financial trouble. As for customers who are Baby Boomers or older, purchases below €500 for food and beverage, health, and beauty, and uses a credit card. Then Scalapay is safe to approve their purchase because of the low probability of default. It is also recommended that Scalapay does not take into consideration a customers' place of residence as a deciding factor for whether or not they can payback their loan because it can lead to discriminatory practices. For example, declining the purchase of customers from southern regions solely because historically they are the most disadvantaged parts of Italy is discriminatory becuase it prevents customers from these areas the same opportunities as their northern counterparts.

Furthermore, this report proposes additional recommendations that Scalapay can implement to make their lending practices more fair beyond the purchase decision process. It is recommended that Scalapay also collects information on a client's employment status as it is a more accurate measurement on their ability to fully pay their monthly payments. A purchase limit should also be placed for customers who belong to high default groups such as Gen Z, prepaid cards, and unemployed individuals. The recommended purchase limit is €150 as analysis showed that purchases above €148.99 were 1.44 times more likely to default over the average. A rewards point system for merchandise categories that have the lowest defaults will also greatly benefit Scalapay as it encourages people to buy these products more as opposed to products that have a higher default rate. Additionally, a rewards point system will not only encourage customers to use Scalapay more but also encourages them to be more financially responsible. Incorporating all these recommendations into Scalapay's lending practices will help the business cater to the demands and needs of the future, with whom there is a greater interest and need for a more equitable and sustainable way of life.

INTRODUCTION

For the last few years there is a growing interest and demand by societies across the globe for a more equitable and sustainable way of life. The United Nations Sustainable Development Goals (SDGs) was created to inspire and provide a framework for how individuals, communities, and organisations can achieve such a future. Additionally, the last few years has also seen a rapid growth in Buy-Now-Pay-Later (BNPL) which is an alternative form of payment that enables customers to receive a product or service immediately and pay for its cost in instalments after. Scalapay is a BNPL service that caters for the European market. It is the number one BNPL service in Italy and is widely used in many other European nations. The demand for an equitable and sustainable future will be a great challenge for BNPL services such as Scalapay. Under the guidance of the eighth SDG, this report aims to help Scalapay meet the demands of the future by providing recommendations for how they can improve the fairness of their lending practises. A lending decision is considered fair if it is properly justified by current data and does not discriminate against the individual based on factors beyond their control.

This report will first provide an analysis of Scalapay's Italian customers and identify customer segments that have a high default rate and those with low default rate. The variables for which the customer segments are derived from are age, region, postcodes, age, order amount, payment type, product type and merchant category. This section of the report will also provide explanations of why these customer segments are defaulting or not defaulting based on what the literature claims.



Once customer segments are identified, this report will then provide recommendations of whether or not Scalapay should or should not approve the purchases of customers from each segment. Furthermore, the recommendations section also provides additional strategies that Scalapay can implement to further improve the fairness of their lending practices beyond the purchase-decision process.

METHODOLOGY

SCALAPAY ANALYSIS

- The Scalapay dataset was analysed using the Microsoft PowerBI software. Through this software, the relationship between various variables was analysed to determine the rate of default to not default purchases. Additionally, Microsoft Excel was used to visualise the data used in this report and further research was conducted on several variables to investigate the possible reasons for default. The sites used for the research were Google Scholar, UOW Library, and Google.
- Additionally, although data analysis software tools are employed throughout the study, there are still certain limits in developing correlations between entities owing to resource and time restrictions. However, the process of managing variables by categorising each variable into customer segments, determining the link between the variables, displaying the data, and lastly providing optimisation policies and remedies to the business's current issues is the point to concentrate on here.

CUSTOMER SEGMENTS:

Age, Order amount, Merchant category, and Payment type

Figure 1.

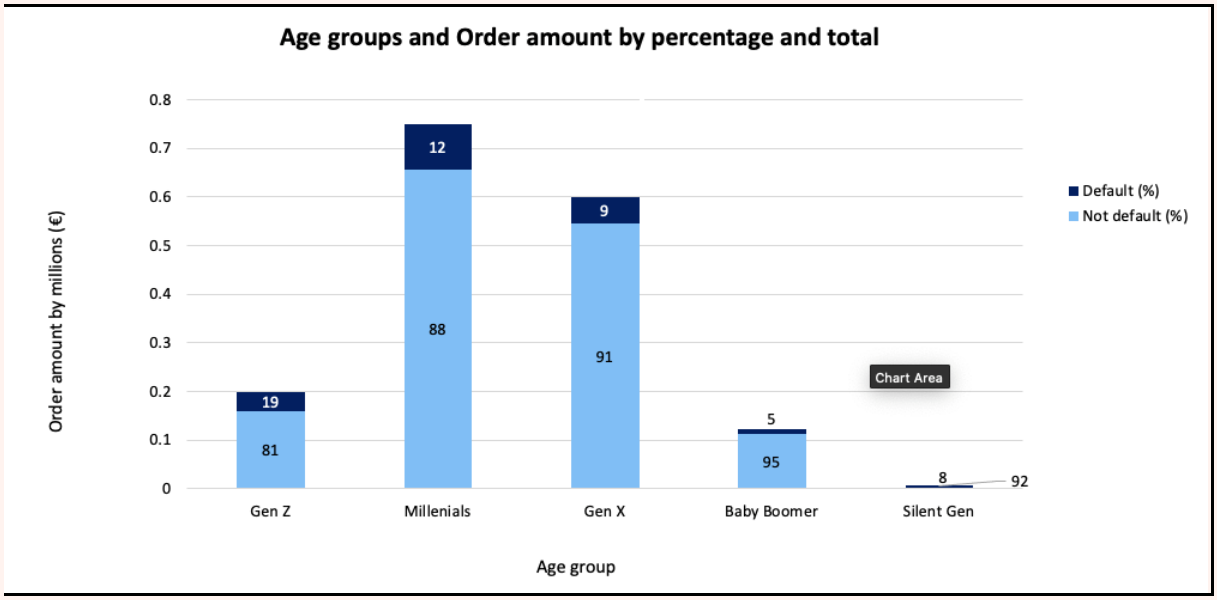
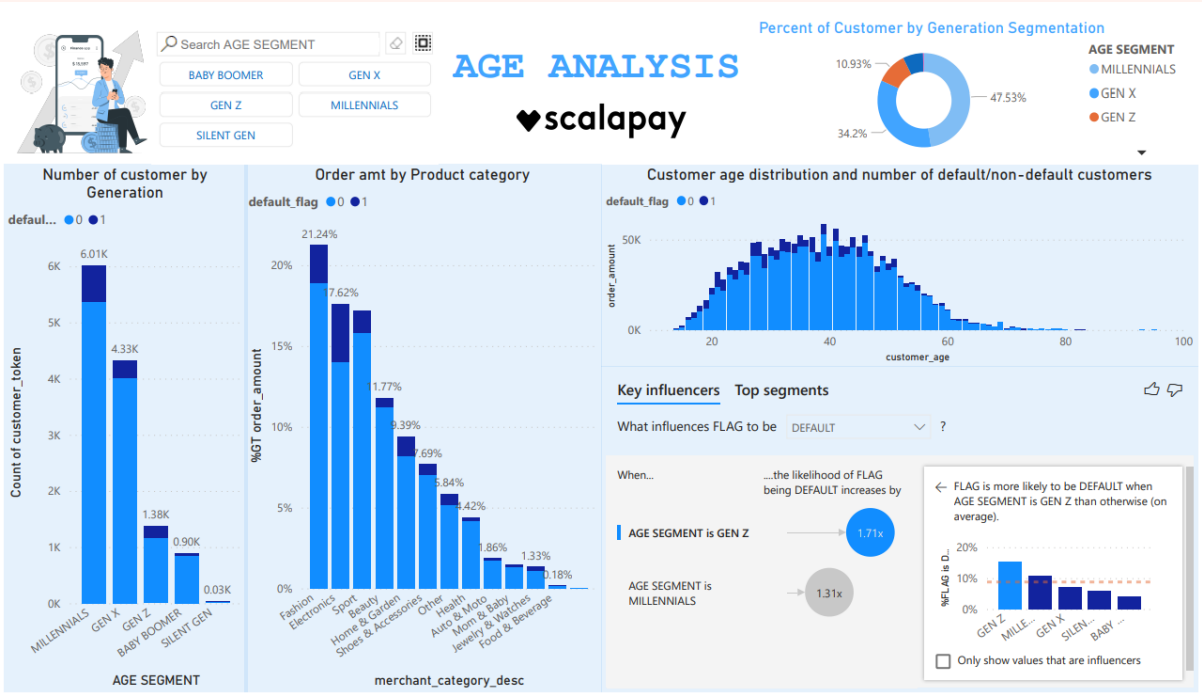


Figure 1 reveals that millennials (aged 25 - 40 years old) buy the most using Scalapay and they are followed by Generation X (aged 41 - 55 years old). This finding of millennials being the largest customer demographic is similar to other BNPL services such as Klarna, Afterpay, Affirm, and Paypal who report that their greatest share of user base is Generation Y, otherwise known as millennials (PayPal Newsroom 2021; Intelligence Editor 2021).

Afterpay Touch Group Limited (2018) believes that this generation, who are likely to deal with thoughts and plans of the future more strugglingly than Gen X and Baby Boomers (56 - 73 years old), prefer BNPL to credit card since it allows them to break down the product's cost into smaller amounts and pay them monthly without any additional fees.

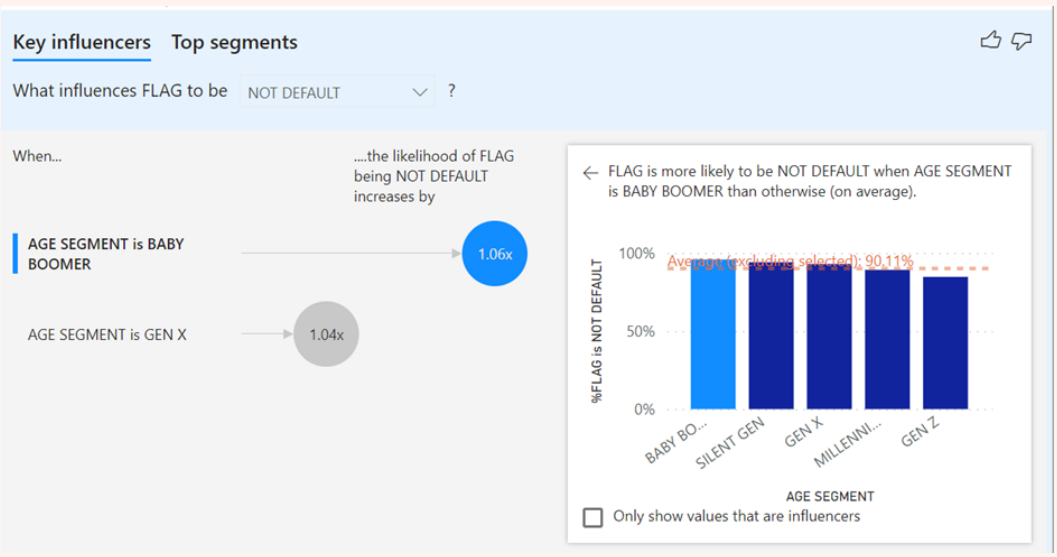
Picture 1.



Scalapay's main customers, according to the dashboard above (Picture 1), are generation Millennials, who account for 6.01 million subscribers, or five times the number of generation Z. In comparison to the other generations, Gen Z not only has a lower likelihood of using Scalapay, but also has a 1.71 times greater default ability. Despite being the majority of Scalapay's customers, Millenials have the second-lowest default ability, behind only Generation Z.

Meanwhile, generation X is a prospective client group since, with 4.33 million customers, it has a lower risk of default than generation Baby Boomer (Picture2)

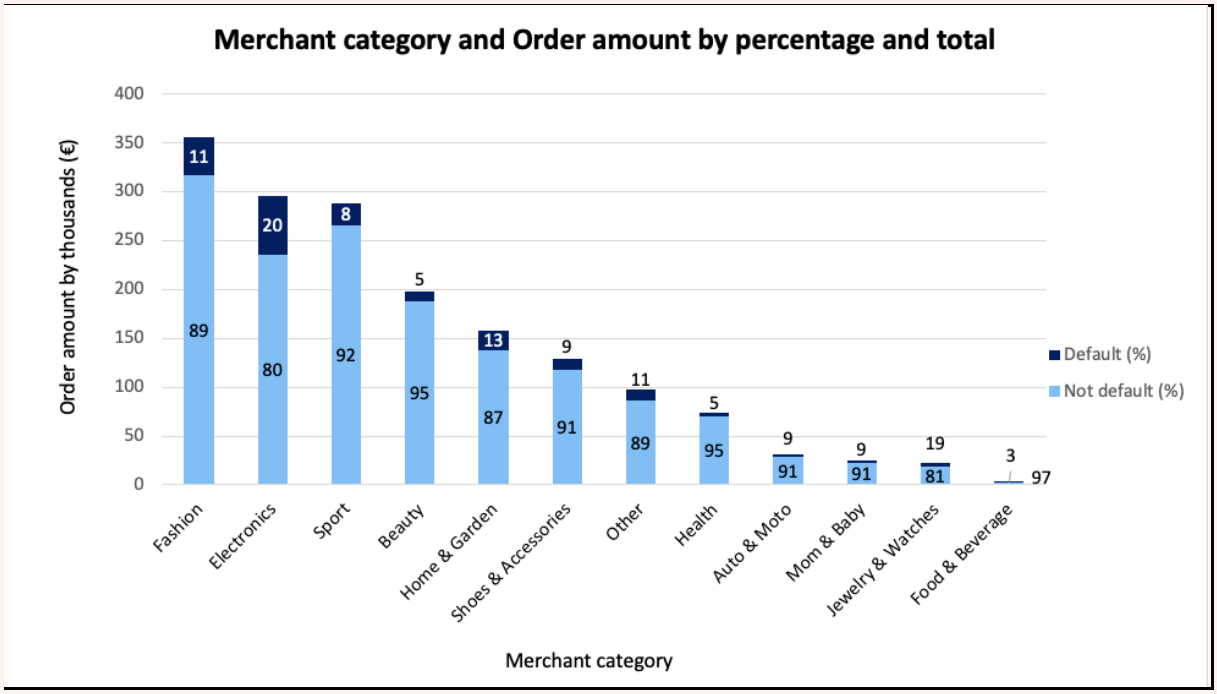
Picture 2.



According to Subin (2021), millennials utilise BNPL to better manage their budget and ease some financial burden owing to higher costs of housing and education without having to worry about overusing credit cards' limit. Hence why many millennials turn to BNPL and perceive it as a more economical and less hazardous alternative for their purchases.

Subin (2021) also denotes that this generation has a tendency to purchase a great deal of items from numerous categories and some of them might even be addicted to online shopping, hence, BNPL becomes a more convenient system. To be more specific, younger consumers who yearn for a trendy clothing item, a cosmetic kit, or the latest model of a MacBook and so on after seeing it on an influencer's YouTube, Instagram or TikTok channel adopt this payment option to be capable of buying them, especially when they do not own enough money to afford the products at the time of purchase. Figure 2, showcases that the largest merchant categories customers purchase from are fashion, electronics, sport, and beauty. While the merchant categories that have the highest rates of default are electronics, jewellery and watches, fashion, other, and home and garden. In fact, analysis shows that purchases on electronic products are 2.13 times more likely to default over the average default rate. On the other hand, jewellery and watches is 1.73 times more likely and home and garden is 1.25 times more likely to default over average.

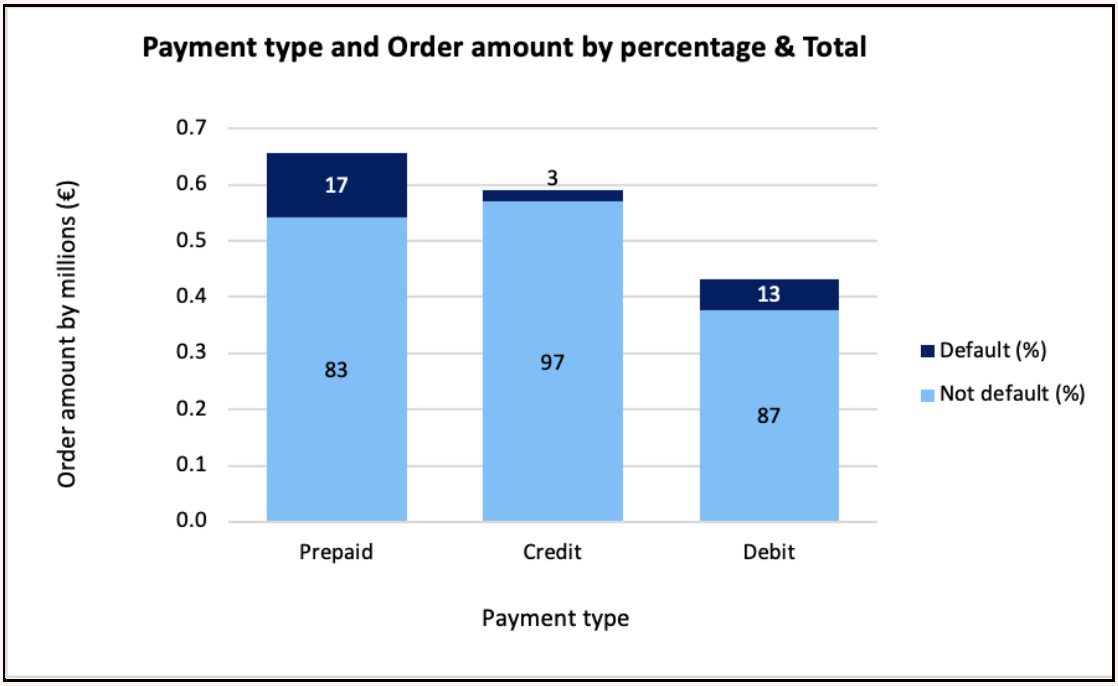
Figure 2.



Additionally, as a result of e-commerce opportunities and the trend of digital transformation, especially during the global pandemic and continuing lockdowns, this payment method has flexibly endowed millennials with better user experience when payment via phone acts as a default paying mode (Insider Intelligence Editor 2021). In a circumstance where their cash flows become more limited mostly for high-priced products such as cars, electronic devices, houses and so forth, a substantial number turns to BNPL to fight against financial hardships. Hence, although this concept has been there for decades being the act of Singer Sewing Machines to vend their merchandise in the 19th century, the surge of adopting this service becomes more vivid in this era of millennials and Generation Z (14 - 24 years old) (Stężycki 2021).
While most of the BNPL users are millennials, defaults also occur more in their BNPL purchases rather than the older generations such as Baby Boomers who have the lowest rate of default and the Silent Generation (aged 74 - 95 years old) who have the second lowest rate of default. This occurrence can be attributed to the fact that individuals from these generations tend to have a higher understanding of how to manage debts and other expenses well (Subin 2021).

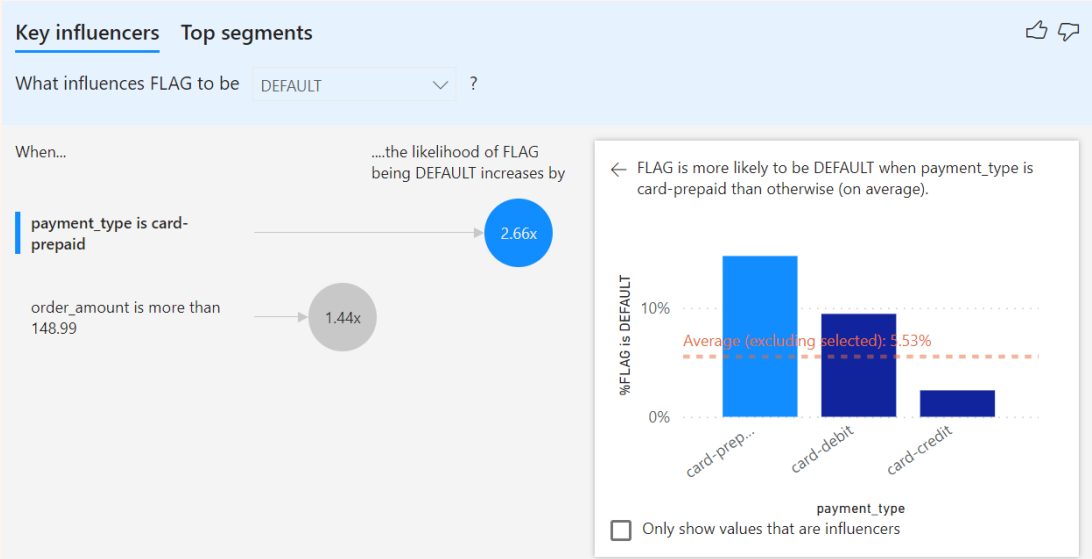
However, millennials and the younger generation must deal with risks of overspending and probable debts. When paying their instalments at the end of the month, Gen Y and Z are likely to form a carefree attitude towards credit, especially with their high needs of purchasing and chasing social media trends, which mostly drives them to engage in unaffordable debts (Kearins & Eribake 2021). Conforming to Boxell (2021) and Stężycki (2021), BNPL can be a structure of imprudent lending that seems to be a shopping “gamification” close to the stock trading app of Robinhood Markets Inc., which generates a perception that there is no actual spending when users might utilise a variety of apps to pay debts and overdraw their bank accounts afterwards or sign up to credit debt to maintain their buy now pay later accounts, causing a chain of purchasing items by borrowing elsewhere, which impacts on not only their financial management but also constructs a risk on the banking system. This is also evident in Scalapay’s customer base (see Figure 3) where the second largest payment method used are credit cards. Although this payment method does produce the lowest instances of default and payments through prepaid card have the highest default rate followed by debit card.

Figure 3.



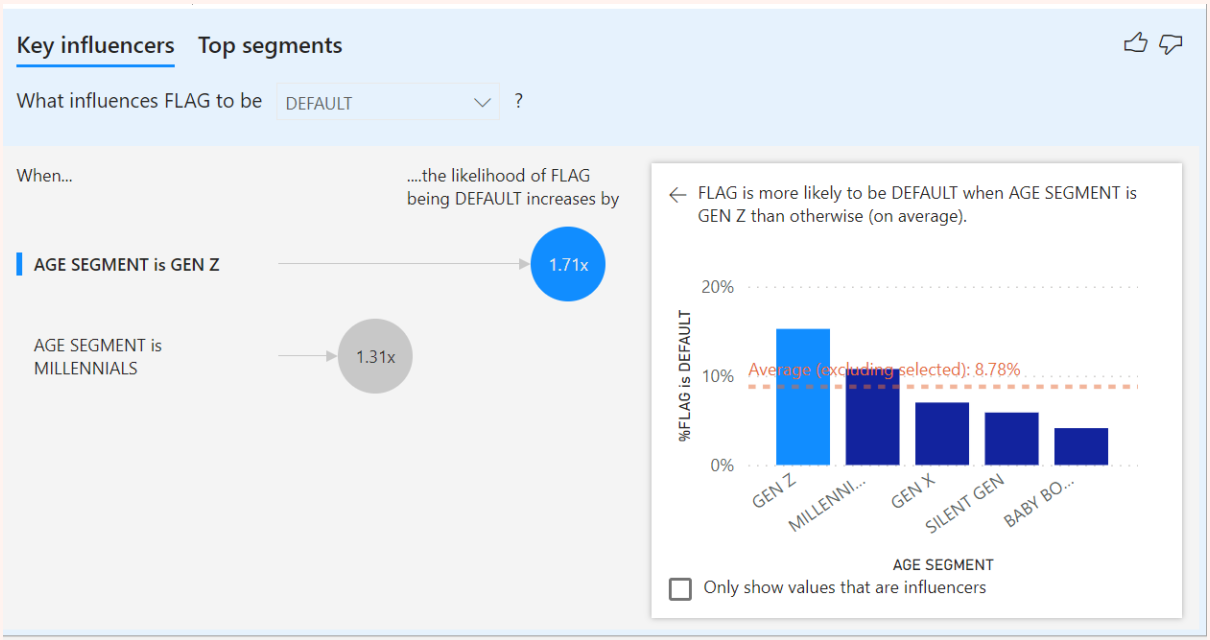
The study above is comparable to the findings of an analysis of Scalapay customer data, as seen in Picture 2. Customers who pay with a Card-prepaid card have a 2.66 times greater likelihood of defaulting, and if a client defaults, the order volume and default order value are likewise 1.44 times more than those who pay with another payment method.

Picture 2.



According to PayPal Newsroom (2021), there exists a possible connection between different age segments, financial literacy, and chances of default. Generation Z being involved in a crave for purchasing a wide variety of products, chasing trends and a so-called ‘subscription lifestyle’ where consumers prefer to pay in fixed amounts than the entire upfront such as paying monthly fees for electronic devices, fashion items, beauty products, streaming services and so forth in order to gain enough money to satisfy all those needs and a feeling of less guilty when buying costly items. Due to this prominent level of demand while being less financially stable compared to other groups, they have a high tendency to initiate defaults when using BNPL services. An analysis of the relationship between customer age and default shows that Gen Z are 1.71x more likely to default when compared to the average Scalapay customer while millennials are 1.31 times more likely (Picture 3).

Picture 3.



Order amount was also analysed independently by dividing it into three levels which are low, medium, and high. Low order amount refers to purchases below 500€, and it comprises the majority of purchases of 500€-1000€ and high order amounts are all purchases obove 1000€. Although purchases obove 1000€ occur the least, they have the highest rates of default (see Figure 5), followed by medium order amount and low order amount

Figure 4.

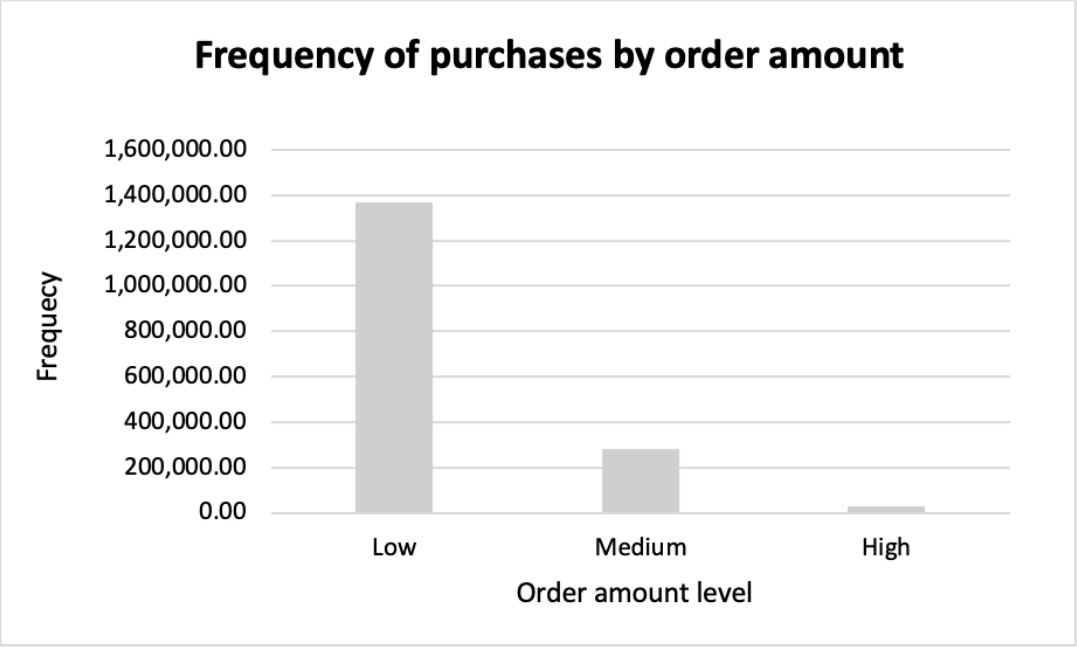
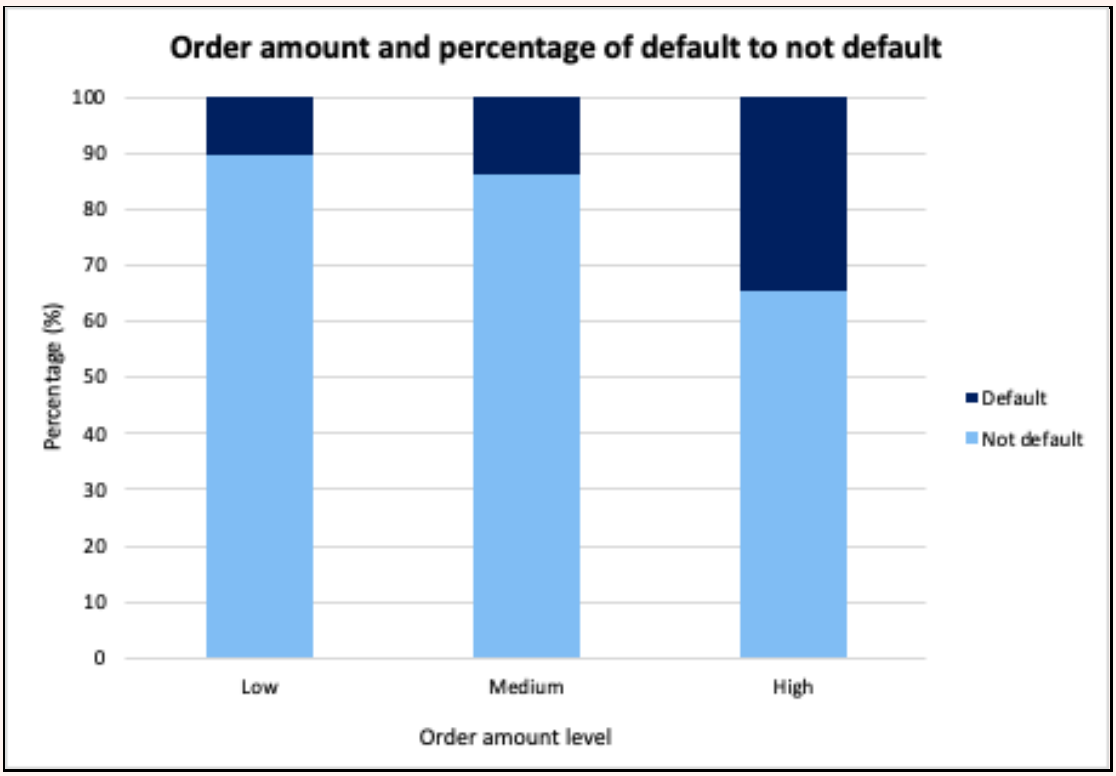
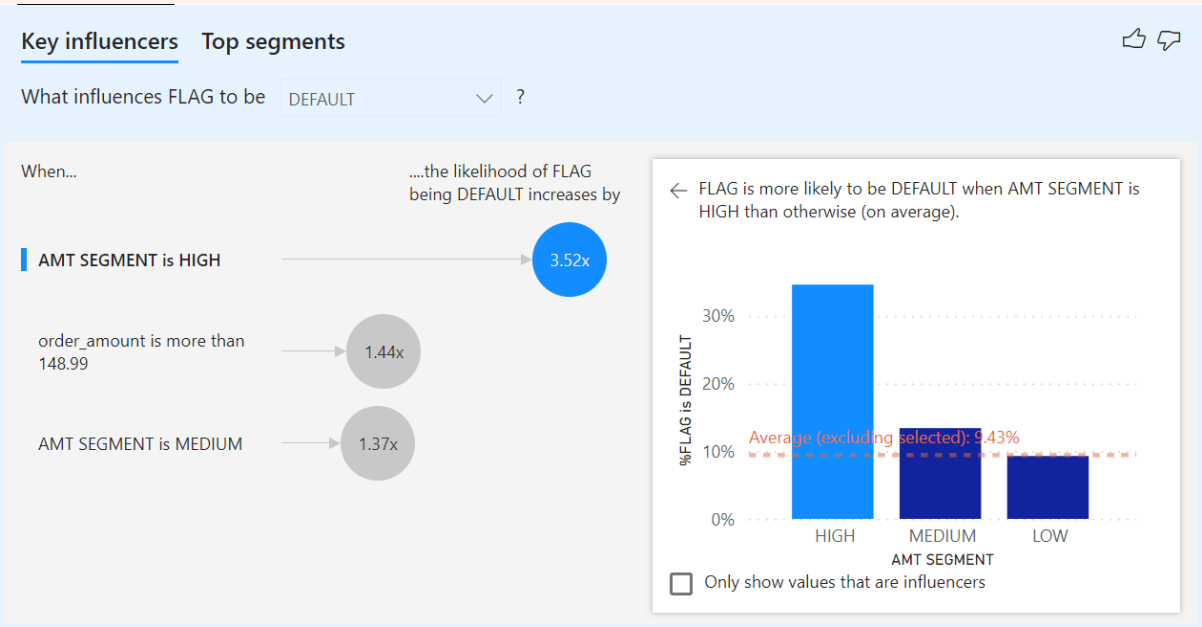


Figure 5.

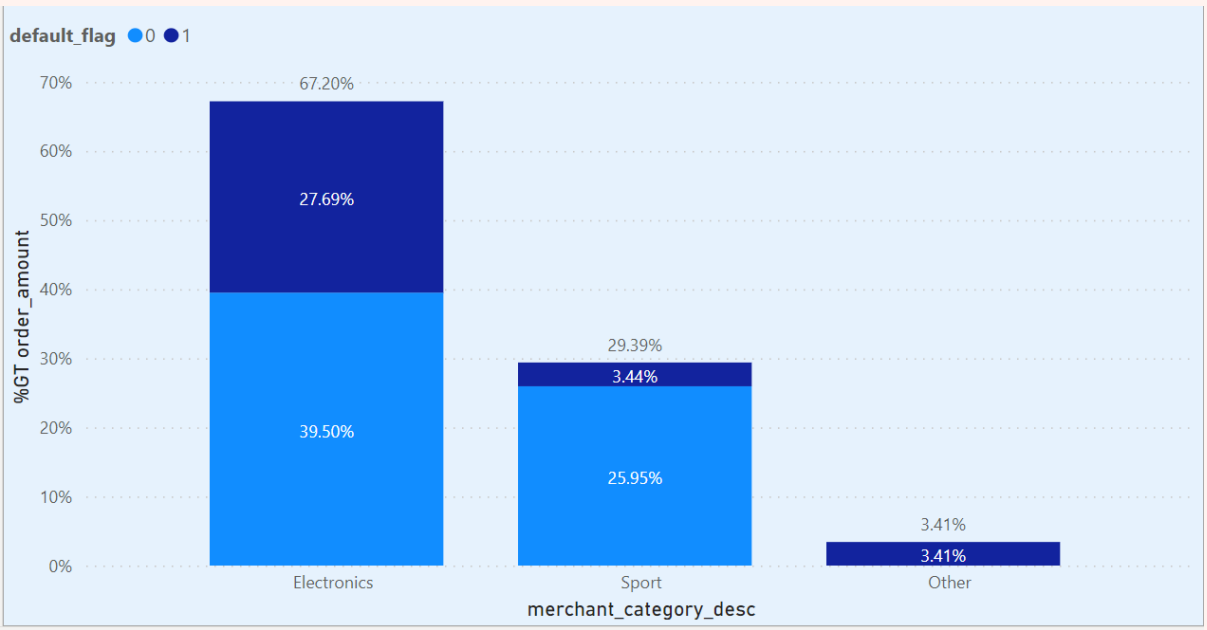


Picture 4.



Based on Picture 4 above, it is easy to see that customers who buy products with a value of € 1000 or more have the highest probability of defaulting 3.52 times higher than other order amount segmentation.

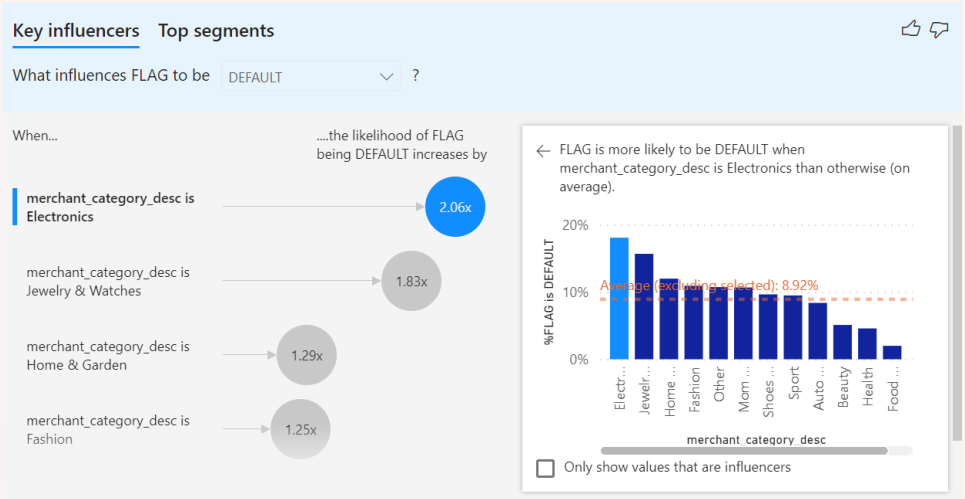
Picture 5.



When using Power BI's data visualisation tools to filter out products with a high order value of over 1000, the data reveals that the majority of these orders are for Electronics, and the likelihood of these products defaulting is so high that three out of every seven orders are for customers unable to pay (Picture 5).

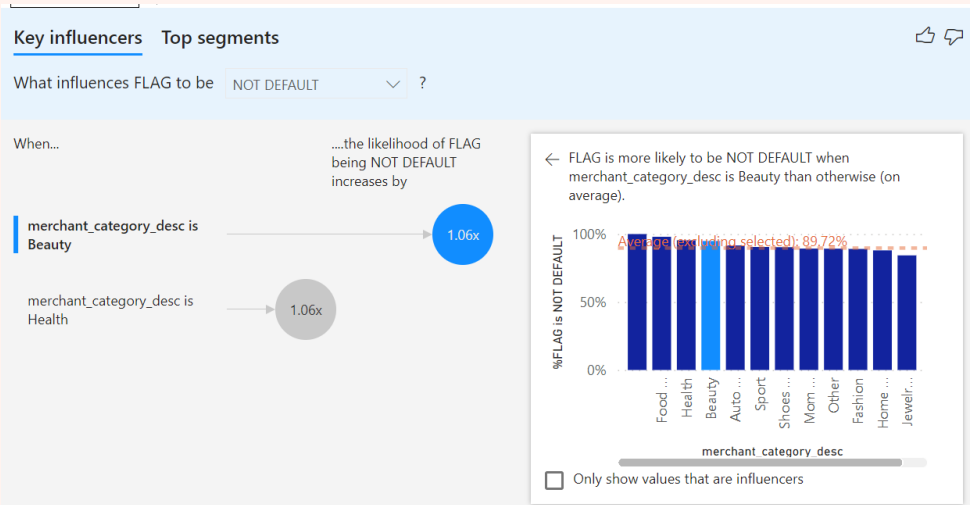
In addition, based on the Picture 6 data below, customers who buy Jewelry & Watches products are also likely to default nearly as much as customers who buy Electronics products.

Picture 6.



In contrast, the orders with a high probability of not defaulting are orders like Beauty and Health (Picture 7)

Picture 7.



Regions and Postcodes

Figure 6 shows that Scalapay receives its largest order spendings from the northern Italian region, Lombardia. This occurrence can be attributed to the fact that in 2020, Lombardy was reported to have the highest gross salary in the country (Varella 2022). Calabria is another Southern Italian region but unlike Lombardia, it has the nearly lowest order amount by region. Calabria also has the highest probabililty of default (see Picture 8), while the southern regions Campania, Puglia, Valled'Aosta follow closely behind (Figure 7). Varella (2022) reports that Southern Italy registers the highest percentage of low-waged employees. Additionally, Varella (2021) reports that the majority of people who are at risk of poverty and social exclusion also live in the southern regions of Italy and the islands. In 2019, the top three regions that had the highest proportion of vulnerable people were Campania, Sicilia, and Calabria. Hence, despite having an order amount that's approximately half of Lombardia, defaults from Scalapay's customers in Campania and Calabria are greater than Lombardia. In addition, based on Picture 10, we can see that Cambania has twice the volume of transactions compared to Calabria, so although Cambania's default rate is lower than Calabria, a default will bring double losses and double risk for Scalapay company

Picture 8.

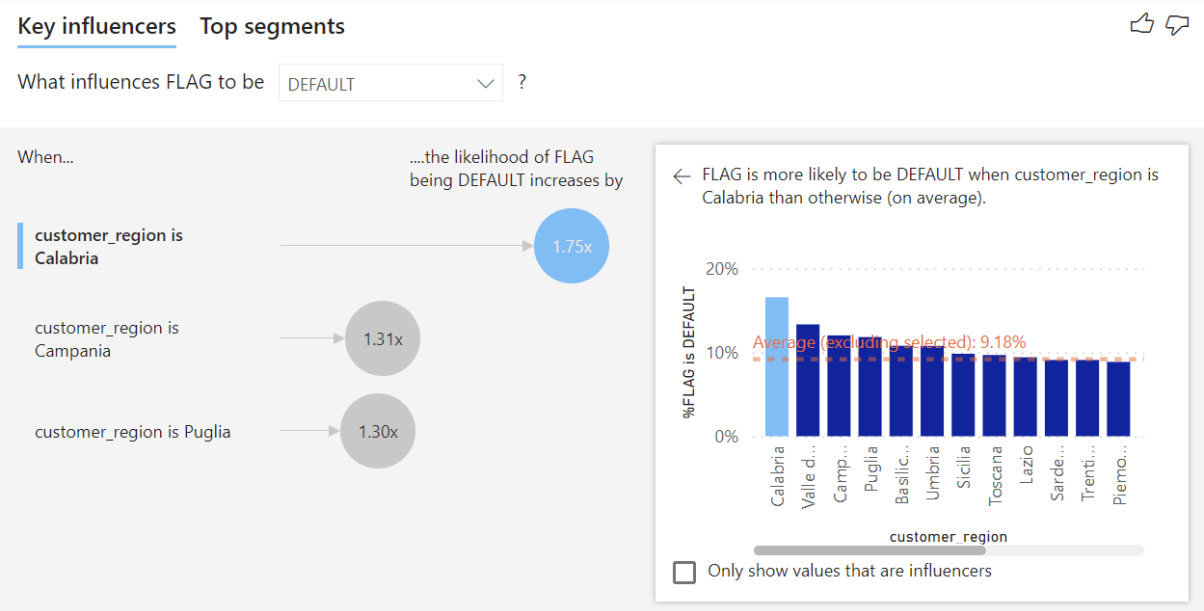
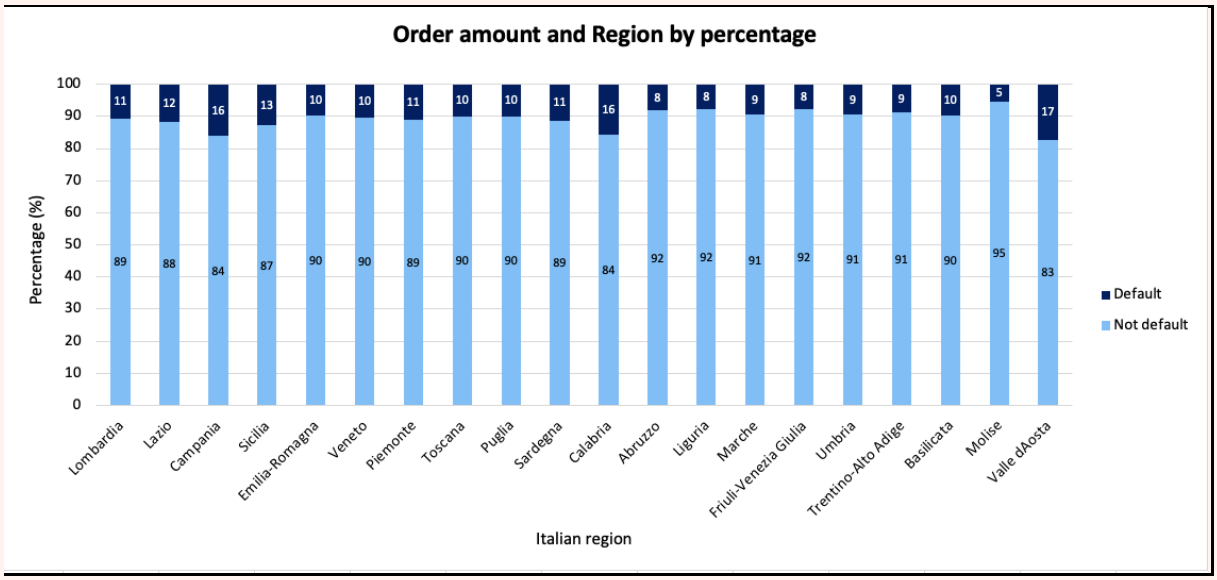
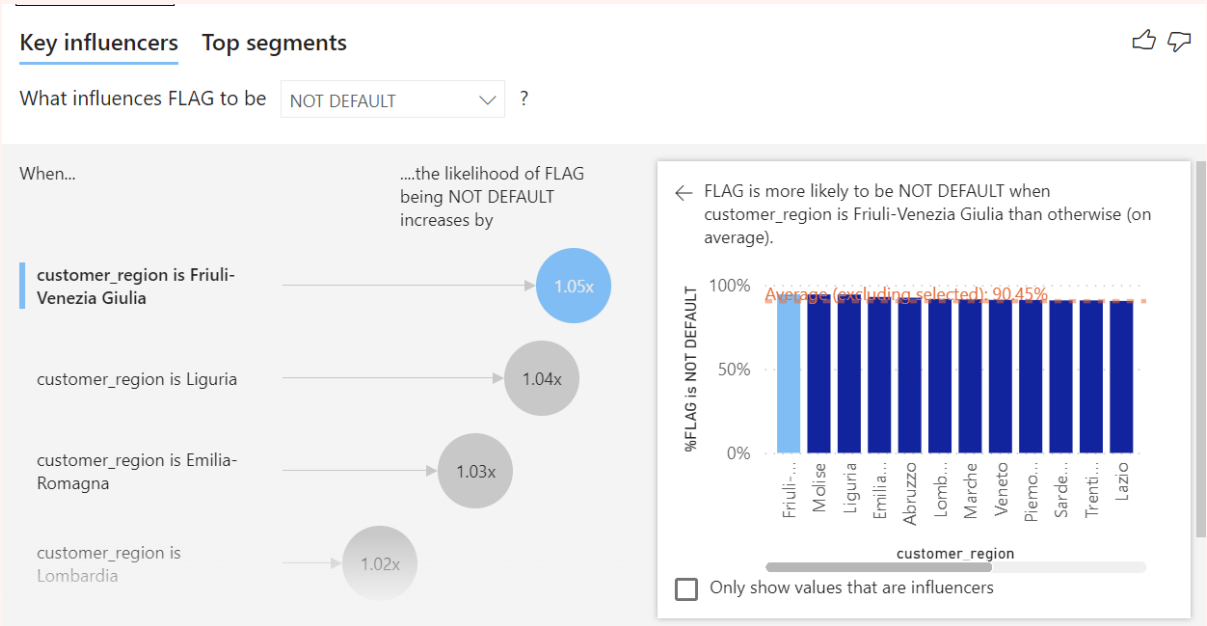


Figure 7.



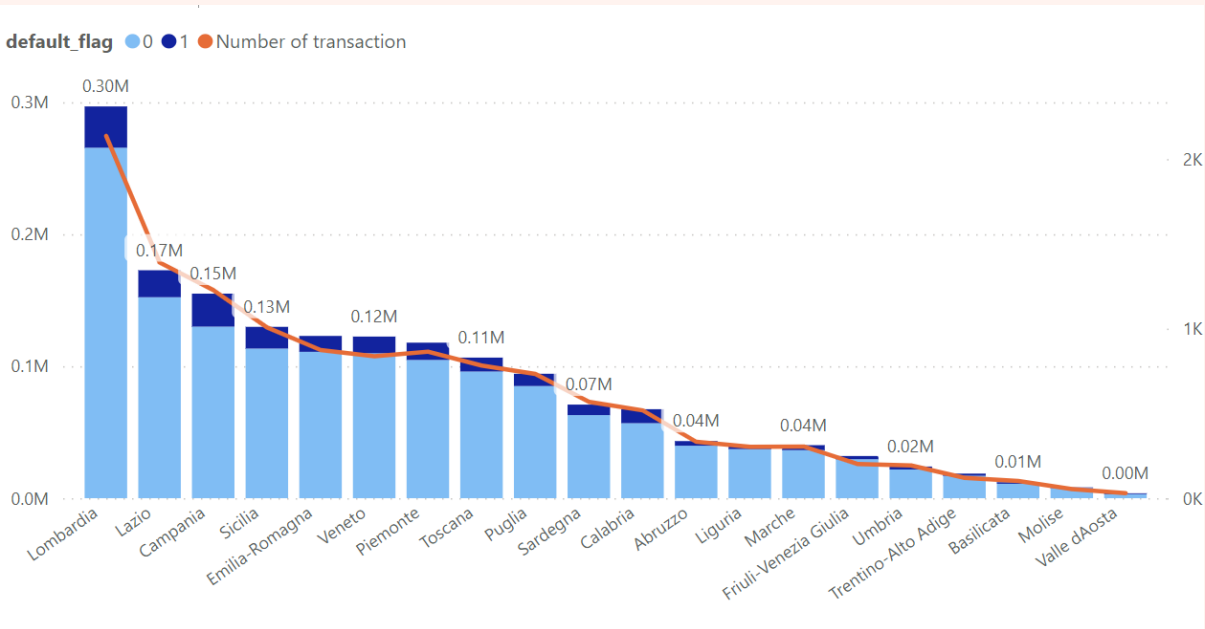
On the other hand, based on Picture 9 below, we see that customers living in cities like Friuli-Venezia Giulia, Linguria, Emilia-Romagna, Lombardia have a very low probability of defaulting on payments.

Picture 9.



In particular, when comparing between three cities, we find that customers living in Lombardia are a promising customer segment because they have the highest transaction volume compared to other cities at 0.3 million dollars and have a large number of transactions, using Scalapay service the most. Above all, the probability of default of these customers is not high, only 1.02 compared to other cities, ranked 4th in the list of cities with low default rate. This can be explained by the high gross salary in Lombardia, which leads people here to have a high ability to pay for the goods they have borrowed.

Picture 10.



CONCLUSION:

In definition, financing is granted based on the lender's faith in the borrower's creditworthiness. One of several elements determining a lender's credit rules is credit worthiness, which includes the borrower's ability and willingness to pay. Creditors and lenders use a variety of financial instruments to assess a potential borrower's creditworthiness. Creditors prefer borrowers that generate net earnings that are greater than their loan obligations and any potential contingencies. The Microsoft Power BI software was used to analyse the Scalapay data. The association between numerous variables was examined using this software to calculate the rate of default to non-default purchases. Furthermore, Microsoft Excel was utilised to visualise the data in this report, and additional study was undertaken on numerous variables to analyse the likely causes of default. Some of the characteristics that we assessed when analysing the data are as follows - electronics, jewellery and watches, fashion, other, and home and garden are the merchant categories with the greatest default rates. Compared to the average default rate, electronic product purchases are 2.13 times more likely to default. Jewellery and watches, on the other hand, are 1.73 times more likely to default than the average, and home and garden are 1.25 times more probable. Given the fact that Credit-Card is the second most used card, it has the least default rate, prepaid card payments have the highest default rate, followed by debit card payments. Even though purchases above €1000 are rare, they have the greatest default rates, trailed by medium and low order amounts. Southern Italy has the biggest proportion of low-wage workers.

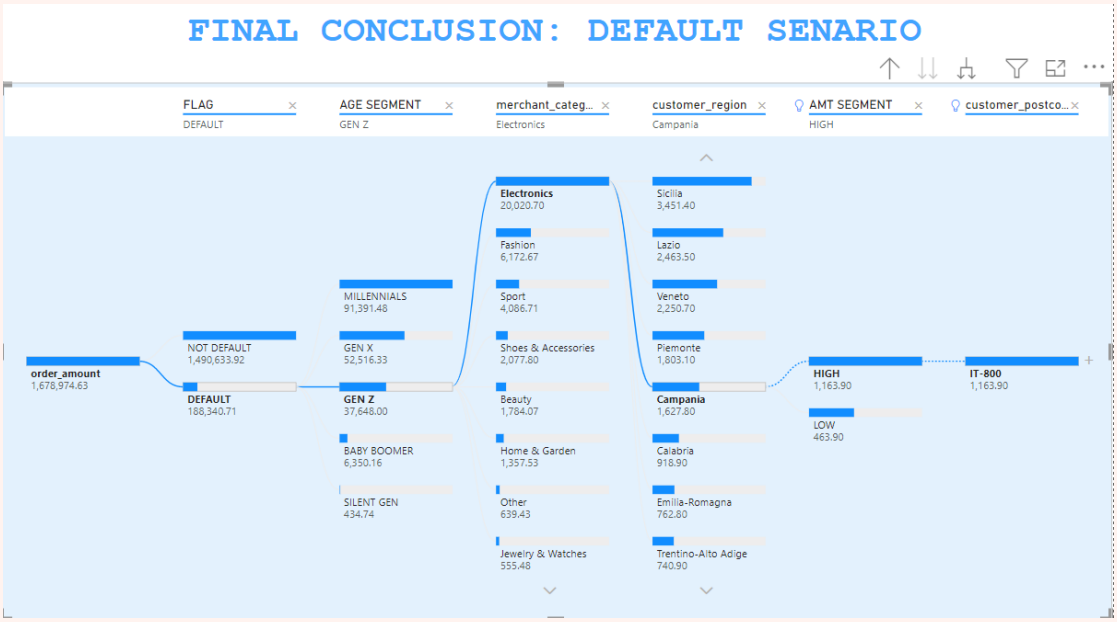
Moreover, based on the above analysis we can also withdraw that Scalapay's most lucrative client segment is Generation Millennials, owing to their capacity to adapt to technological advances, high transaction volumes, and huge transaction volumes. However, generation X is a potential group because to their high transaction volume yet low default rate. And generation Z should be placed on the blacklist due to their high risk of default.

In a nutshell, high-risk consumers will exhibit the following characteristics: Generation Z uses card-prepaid payment methods, often places large orders (over €1,000), purchases things such as electronics and jewellery and watches, and resides in Campania. Customers who are less prone to default, on the other hand, will exhibit the following characteristics: Generation X uses card-credit payment methods, often

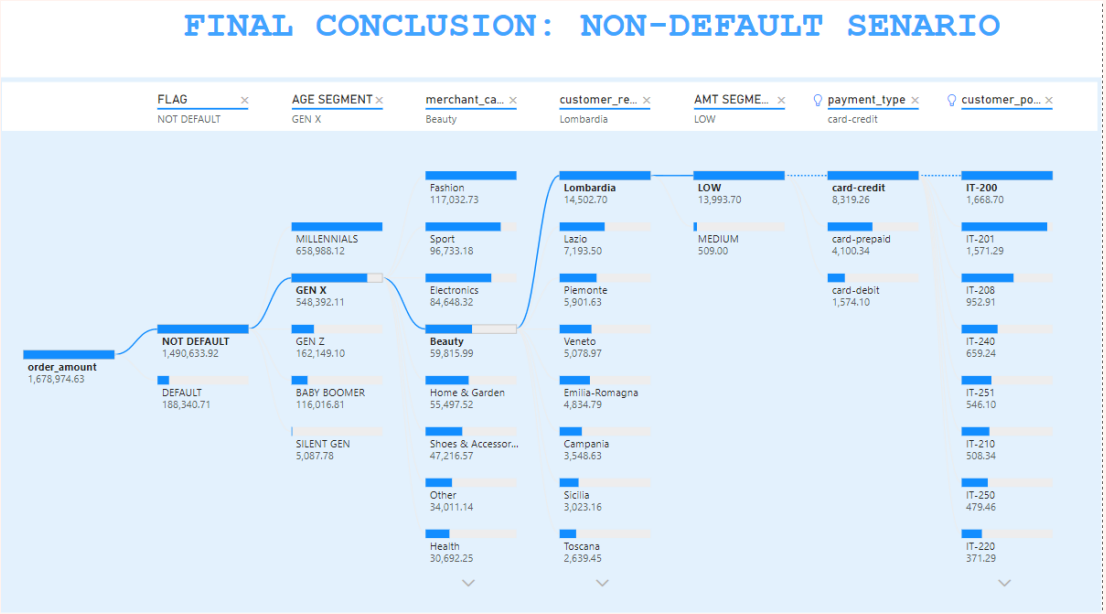
places small orders (under €500), purchases items such as Health & Beauty, and resides in Lombardia.

By aggregating the aforementioned data and using decomposition tree techniques, we can determine that consumers who reside in locations with postal code IT-800 have the greatest likelihood of default and should be added to the blacklist (Picture 11). Customers who live in postal codes IT-200 and IT-201 have the lowest default likelihood. Scalapay must conduct periodic advertisements or promotions to stimulate residents in this region to use Scalapay's services (Picture 12).

Picture 11.



Picture 12.



RECOMMENDATION:

Part 1 - The purchase decision process

The purchase decision process is the real-time automated system Scalapay uses to determine whether a customer can fully pay the monthly installments of a product before Scalapay approves the purchase of that product. The challenge put forward was to make the purchase decision process more fair. As stated earlier in the introduction, the approval or refusal of a customer's purchase is considered fair if it is properly justified by data. Hence, why the following part provides a set of heuristics Scalapay can implement to make their purchase decision process more fair. The following heuristics are based on which customer segments are most likely and least likely to default as found in the previous section . For a fair decision process, it is recommended that Scalapay should take into consideration the multiple segments a customer belongs to and if they belong to numerous segments that have a high default rate then it is justified for Scalapay to decline their purchase.

Analysis shows that the generation who is most likely to default is Generation Z (14 - 24 years old) who are 1.71 times more likely to default over the average default rate for age. Firstly, Scalapay should decline the purchase request of all customers below 18 years old as they do not meet the required registration age to use Scalapay. As for Gen Zs who are 18 years old and above, it is recommended for Scalapay to take into consideration the merchant category, order amount, and product type before deciding to approve or disapprove the customer's purchase. This step also applies for millennials who have the second highest default rate for age. If the customer is purchasing a non-essential product that belongs to the merchant categories that have the highest default rate then Scalapay should consider declining the customer's purchase. These merchant categories are jewelry and watches, electronics, home and garden, and fashion. Next, if the product is of a high order amount (> 1000€) then Scalapay should consider declining the purchase as analysis shows that purchases of high order amount have the highest default rate of 3.52 times more likely to default than average. Finally, if a customer is using a prepaid card to pay their monthly installments then Scalapay should consider declining their purchase as analysis has

found that this payment type has the highest default rate and customers who use prepaid cards are 2.66 times more likely to default.
As for which customer segments Scalapay should consider approving the purchases of, it is recommended that Scalapay should approve the purchases of Baby Boomers (56-73 years old) as they have the lowest default rate of 5% and Silent Gen (74-95 years old) with whom only 8% defaulted. Although these generations are the fewest in numbers and the least familiar with digital payments and e-commerce, they do have higher financial literacy (Stężycki, 2021). With high financial literacy, older generations are less likely to default because they can better manage their monthly payments and are also less likely to be influenced by trends and impulse buy (Stężycki, 2021). Next, the merchant categories Scalapay is safe in approving the purchases of are food and beverage, health, and beauty as these merchant categories only have a default rate of 5% or below. Finally, payments by credit card were found to have the least default, however, care should be taken on the order amount level as the customer can get into deep financial trouble if they have a high or medium order amount which they cannot pay.

On the other hand, it is highly recommended that Scalapay does not take into consideration a customer's place of residence in the purchase decision process because it can lead to discriminatory practices. For example, there is a historical divide in Italy between the Northern and Southern regions where wealth and opportunities are predominantly concentrated in the North as opposed to the South who have few. Declining a customer's purchase because they live in the poorer Southern regions unfairly discriminates against them because they are prevented from accessing the same opportunities as their Northern counterparts solely because of their place of residence. Additionally, the place of residence is not an accurate factor to use to determine whether a customer is capable of paying their monthly payments. For example, Campania was found to have the highest default rate of 16% among all Italian regions. However, it would not be fair to assume that all residents of Campania are incapable of fully paying their monthly installments as there is a divesity in purchasing capacity not just between regions but also within regions.

Part 2 - Fair lending beyond the purchase decision process

In addition to the current variables Scalapay collects from its customers, it is recommended that Scalapay should also collect information on a customers employment status. With this additional information, Scalapay can more accurately determine whether a customer is more likely or least likely to default on the different order amount levels. For example, if a customer stated that they were unemployed or a student then Scalapay should not approve purchases of medium to high order amount as it is highly likely that they will struggle to meet the monthly payments with a very limited income. Furthermore, it recommended that Scalapay should place a purchase limit for Gen Zs and on payments via prepaid cards because of their high default rates. A purchase limit of 150€ for these customer segments is recommended as analysis shows that purchases above 148.99€ are 1.44 times more likely to default than the average. Having a purchase limit prevents these customers from getting into very deep financial trouble as their monthly payments will be smaller therefore easier to manage. The final recommendation is rewards point program Scalapay can implement to encourage customers to buy products that have a lower default rate. For example, if customers buy products that belong to the merchant categories of food and beverage, health, and beauty they will receive some reward points once they have fully paid their monthly payments. If customers accumulate enough points they can exchange it for a reward, such as having a higher purchasing limit. This not only encourages customers to use Scalapay on such products, but they will also be discouraged to use scalapay for purchases which they cannot pay back. All these recommended practices will help improve the fairness of Scalapay's lending practices and as well encourages customers to be more financially responsible.

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Thank You.