Measuring the effectiveness of intermediary loyalty programmes in the motor insurance industry: loyal versus non-loyal customers

Manuel Leiria
Faculty of Economics, Cinturs – Research Centre for Tourism, Sustainability and Well-being, Universidade do Algarve, Faro, Portugal
Efigénio Rebelo
Faculty of Economics, Universidade do Algarve, Faro, Portugal, and
Nelson deMatos
School of Management, Hospitality and Tourism, Cinturs – Research Centre for Tourism, Sustainability and Well-being, Universidade do Algarve, Faro, Portugal

Abstract

Purpose – The insurance industry has not been able to effectively retain its customers and struggles to establish and maintain long-lasting relationships with them. The purpose of this paper is thus to identify the main factors that explain the cancellation of motor insurance policies by individual customers, considering the influence of intermediaries on their decisions.

Design/methodology/approach – The data used in this research is based on a sample of 3,500 insurance policies that lapsed during the period of analysis between January and July 2017, against another sample of 3,500 policies that did not lapse, from a major insurance company in Portugal. Binary logistic regression was used for data analysis, using IBM SPSS software.

Findings – Aggressive tactics by insurance companies for customer acquisition may induce the cancellation of insurance policies. More valuable customers, the policies with higher premiums and recent claims, as well as the ancillary intermediaries and agents, are determinants of insurance cancellation. Conversely, the payment of policies by direct debit and without instalments reduces the probability of cancellations.

Research limitations/implications – The main limitation of this study is the restriction on data access. Insurance companies are significantly resistant to sharing their customer data – including with academic researchers – even in an anonymised form.

Practical implications – The paper highlights internal and external practices of insurance companies that should be reformulated to significantly improve their performance regarding product cancellation, related to customer information management, mistrust behaviours related to stakeholders and new value propositions that deepen the relationships with intermediaries.

Originality/value – This research developed a framework with which to identify the factors that are mainly associated with motor insurance cancellation and to predict its likelihood.

Keywords Customer retention, Intermediary, Motor insurance, Product cancellation

Paper type Research paper

1. Introduction

Insurance is an important business that allows other sectors of the economy to progress (e.g. Han *et al.*, 2010; Weisbart, 2018). As well as its direct economic effect through the financial protection of assets, insurance has a fundamental impact on a customer's peace of mind (Liedtke, 2007). In spite of the importance of this industry to individual people, companies and even nations, however, it has not been able to effectively retain its customers and to establish and maintain long-lasting relationships with them, as demonstrated in previous studies (e.g. Guillen *et al.*, 2003; Brockett *et al.*, 2008; Cohen and Siegelman, 2010). Although insurance companies do not usually reveal their customer retention rates, the fact is that these are rather low (Verhoef and Donkers, 2005). Losing and gaining customers through brand switching is a major, well-founded concern for insurance firms, which generates very negative financial impacts as well as reputational impacts to the industry (Brockett *et al.*, 2008). Lost customers have a negative effect on the company's brand image (de la Llave *et al.*, 2019). The dimension of the challenge is highlighted by an estimated cancellation rate between 24 and 31% (Frees *et al.*, 2018; Mirzamohammadi and Hamid, 2019). Hence, customer loyalty is one of the main challenges (Guillen *et al.*, 2009) and priorities (Bolancé *et al.*, 2016) for most insurance companies.

Product cancellation in the insurance industry has not been a priority in terms of scientific investigation (e.g. Guillen *et al.*, 2003; Braun *et al.*, 2016). "Retention", "cancellation" and "loyalty" are not among the most commonly researched topics in general insurance (Robson and Sekhon, 2011). Customer loyalty to insurance products thus continues to grow in both importance and as a challenge, but remains poorly understood (Taylor, 2016). Loyalty-oriented research and identification of drivers that help explain different loyalty patterns have been identified as an important subject of study for both academicians and managers (Allaway *et al.*, 2006).

Hence, considering the few specific references about customer management, loyalty or retention in the insurance business (Guillen *et al.*, 2003), this study is important because it contributes to filling this gap.

In spite of the relevance of intermediaries in this industry, as the first point of contact between insurance products and customers (Dalla Pozza *et al.*, 2017), research into customer retention has not recognised the influence of intermediaries. The study of lapsing behaviour in insurance has focussed on the socio-demographic characteristics of customers, such as gender or age (Roy, 2012; Staudt and Wagner, 2018), the policy payment method (annual or monthly) and the purchase date or the value of the last premium (Frees *et al.*, 2018; Pinquet *et al.*, 2011), but not on the intermediaries.

Motor insurance and individual customers are also relevant fields through which to research product cancellation (Jeong *et al.*, 2018).

Motor insurance is the largest non-life insurance business in Europe (Insurance Europe, 2018b) and the world (Swiss Re Institute, 2019), and its performance drives the trends observed in the overall non-life sector (OECD, 2020). It is also the insurance that is most frequently cancelled (Brockett *et al.*, 2008). According to Staudt and Wagner (2018), motor insurance customers are more likely to lapse.

The factors that determine the cancellation of policies by individual customers can be significantly different from those by companies. Individual customers have fewer evident and predictable decision processes than organisations (Lopes *et al.*, 2015), who are usually better informed, more rational and objective (Beloucif *et al.*, 2004).

Considering the state of the research and the managerial context of customer retention in insurance, the purpose of this paper is to identify the main factors explaining motor insurance policy cancellation by individual customers, taking into account the influence of intermediaries on their decisions.

Understanding the dynamics behind insurance cancellation and the factors that may explain it is very relevant to the development of the scientific knowledge, considering that it has not been a priority for researchers. Such knowledge is also very important to most

insurance companies in order to prevent insurance cancellation, as customer loyalty is one of its main challenges and priorities (Bolancé *et al.*, 2016; Guillen *et al.*, 2009).

2. Literature review and research hypotheses
The insurance industry faces a problem of customer loyalty that has grown in this era of abundant information, of the digital transformation of businesses that defies strategies and of decision-making assumptions about how to retain customers. Customer loyalty is one of the main challenges (Guillen *et al.*, 2009) and priorities (Bolancé *et al.*, 2016) for most insurance companies, because product cancellation directly affects their profitability (Ascarza *et al.*, 2018; Verhoef and Commandeur, 2001). There is some evidence regarding the association between customer retention and lifetime value (Gupta *et al.*, 2004; Venkatesan and Kumar, 2004) and with equity value (Verhoef and Commandeur, 2001). Several authors (e.g. Reichheld, 1996; Gupta *et al.*, 2004) found that a small increase in retention can have a significant impact on the profitability of organisations. Ascarza *et al.* (2018) argue that retention drives a firm's profitability and value.

There are few specific references for customer retention and loyalty in the insurance industry (Guillen *et al.*, 2003). One reason is that the insurance industry has privileged the study of financial and actuarial elements, paying much less attention to the dynamics behind customer demand for insurance products (Brockett *et al.*, 2008). There are some papers regarding motor insurance cancellation, and among these is a study by Taylor (2016) that demonstrated that both cognitive and affective considerations are important to consumer judgement and decision-making processes. Cohen and Siegelman (2010) examined the profitability of motor insurance customers, demonstrating that the ratio of premiums to losses is larger for repeat policyholders, which were more profitable to the insurance company than new customers. Guillen *et al.* (2003) developed a model to explain motor insurance lapses and to calculate their probability.

There is also a lack of studies regarding customer retention regarding the influence of intermediaries on customer decisions to abandon an insurance company. Although intermediaries are the largest distribution channel in both non-life insurance generally and in motor insurance, in Europe (Insurance Europe, 2018a) and in the world (Swiss Re Institute, 2017), there is still much to be learned. Braun *et al.* (2016) and, more recently, Dominique-Ferreira (2018), have highlighted the very limited research into retail and distribution management in insurance, despite its great importance to the entire business, both upstream and downstream.

Some references were found for the importance of intermediaries in the decisions of insurance customers. According to Short *et al.* (2003), loyal behaviours exist between intermediaries and customers, but not between customers and insurers, which may explain the high churn rates in this business. The insurance company's image as portrayed to customers is affected by the relationship developed between customers and intermediaries (Brophy, 2013a, 2013b; Felício and Freire, 2016; Liljander *et al.*, 2009; Robson *et al.*, 2016).

According to recent findings in the scientific research of insurance cancellation (Leiria *et al.*, 2020), and to the literature reviewed, four research hypotheses were formulated after reviewing the literature, regarding the importance of intermediaries for product cancellation, insurance policy premiums, the existence of claims and the payment options.

2.1 Importance of intermediaries for product cancellation
The levels of customers lapsing in the insurance business may be associated with a customer's vulnerability to the influence of external stakeholders (Brockett *et al.*, 2008), considering that insufficient knowledge of insurance products, by itself, is a cause of lapsing (Pinquet *et al.*, 2011). When there are problems in the insurance value chain, customers tend to

remain clients of the intermediaries but change insurance company (Dominique-Ferreira, 2018). In financial services, retention rates differ among the various acquisition and distribution channels (Verhoef and Donkers, 2005). Therefore, the first hypothesis is:

H1. Intermediaries influence customer decisions to cancel their insurance policies.

There are several classifications of insurance intermediaries. EIOPA (2018), the European Insurance and Occupational Pensions Authority, organised the main types of insurance distributors into five main types: the agents (including four sub-types, the single-tied, the multi-tied, the ancillary and the managing general), brokers, bancassurance, direct writers and digital interfaces such as comparison websites, price aggregators and social media platforms. Hilliard *et al.* (2013) adopted a different classification, considering six broad categories of intermediaries: the direct sales (through direct mail, call centre and Internet), the local agents employed by the insurer, the non-employee sales agents who sell for a single company, the non-employee agents who sell for more than one company (also identified as independent agents), the brokers and bancassurance. In this research, the synthetisation of the different classifications and the characteristics of the database used to collect the information led to the following types of intermediaries: the ancillary, the individual agent, the company agent, the broker, the bank and the direct distribution. Digital interfaces were not considered as intermediaries because in many countries, these channels are classified as brokers and not as a specific distribution channel. In many cases, these platforms are used to gather information to be analysed with the agents and not to finalise the decision process (EIOPA, 2018). Customer use of mobile digital channels, while growing, has remained at low levels in the insurance industry, particularly in developed countries, and only a small percentage of customers use it to conduct their most important transactions (Naujoks *et al.*, 2017).

2.2 Insurance policy premiums

According to Frees *et al.* (2018), the more expensive the policy, the higher the probability it will be lapsed. Fu and Wang (2015) and Guillen *et al.* (2009) explain that increasing the cost of the premium is a major cause of attrition. Beloucif *et al.* (2004) found in the UK insurance market that premium rates may outweigh the role of service quality in insurance purchase which, in its turn, may be associated with a decrease in buyers' loyalty to their insurance providers. Accordingly, the second hypothesis is:

H2. Higher premium policies have a higher probability of being cancelled.

2.3 Existence of claims

According to Guillen *et al.* (2003), making a claim increases the probability of insurance lapsing because it usually leads to a substantial increase in the premium for the current company. Kofman and Nini (2013) found a strong positive correlation between insurance claims and the lapse of the policy for reasons such as avoiding the premium penalties associated with claims. Guillen *et al.* (2009) demonstrated that the existence of a claim is one of the most relevant factors affecting the probability of complete insurance cancellation. Accordingly, the third hypothesis is:

H3. Claims increase the probability of insurance cancellation.

2.4 Payment options

The low frequency of contact between customers and insurance companies (Paredes, 2018) means that increasing interactions for unpleasant or undesirable motives, such as regarding payments, may make people more conscious of the benefits of looking for alternatives, leading to an increased probability of cancellation.

Frees *et al.* (2018) note that the policy payment interval, either annual or monthly, is a relevant factor in understanding lapse behaviour in insurance. It is also important to consider the type of payment used by the customer when assessing customer loyalty (Guillen *et al.*, 2008). Consequently, the following hypothesis was formulated:

H4. Annual payment intervals that do not require interaction with the insurance company reduce the probability of insurance cancellation.

3. Methodology

3.1 Data design

The variables selected to identify the factors associated with the cancellation of motor insurance policies are related to the characteristics of policyholders, the products they possess and the distribution channel for these products, according to the literature reviewed (e.g. Cohen and Siegelman, 2010; de la Llave *et al.*, 2019; Farida and Ardyan, 2018; Frees *et al.*, 2018; Fu and Wang, 2015). Nevertheless, the covariates in the model are constrained to those required to achieve a good explanation of the phenomena, considering that the inclusion of additional covariates may reduce the transferability of the analyses to other companies (Brockett *et al.*, 2008).

Kofman and Nini (2013) argued that exogenous, observable and publicly available variables capture the necessary information about policyholders for testing the empirical hypotheses and that these variables were the policyholder characteristics, automobile characteristics, policy characteristics and policy performance.

3.2 Data collection

The data used in this research consists of two samples of motor insurance policies: one that was in force during a period of analysis between January and July 2017, and another that was in force from the same initial time and cancelled by the end of that same period. The study of insurance policies that were cancelled during a period of time, compared with another group of policies that remained in force during the same period, has been previously used in other research (e.g. Brockett *et al.*, 2008). In the same context, but in a different industry, East *et al.* (1998) studied customer defection based on an analysis of defectors and non-defectors.

The data was obtained from a major general insurance company in Portugal. Cohen and Siegelman (2010) similarly based their research on the observable characteristics of customers from a single Israeli insurer to test the coverage–risk prediction of adverse selection in insurance markets. Kofman and Nini (2013) tested the information advantage of retaining lower-risk policyholders using a data set composed exclusively of the comprehensive motor insurance policies in force as of a certain period in time and from a single Australian insurer.

The two samples include 3,500 motor insurance policies for individual customers, randomly collected, in the same way as other authors researching the cancellation of insurance policies (e.g. Caeiro, 2012; Reuss, 2002) (see Table 1) .

3.3 Data analysis

Binary logistic regression is used in this research for data analysis. These models are adequate to identify relevant associations between the cancellation of an insurance policy and

N	Source	Country	Sex (% male) (M)	Age (years) (M/SD)
7,000 motor insurance policies	General insurance company	Portugal	70.3	50.3/14.0

Table 1.
Research sample

the independent variables, as well as to calculate the probability of a cancellation. According to Fu and Wang (2015), logistic regressions are natural choices for modelling binary response variables because this method has become a standard in insurance retention modelling. Verhoef and Donkers (2005) also argue that, as customer retention is a binary variable (defection/retention), the probit model is the best option with which to estimate the effect of the acquisition channel on customer retention. Brockett *et al.* (2008) also used a logistic regression model to predict the probability of a policy cancellation. Guillen *et al.* (2003) described this method as suitable for constructing a lapse score to provide some indication of the customer's expected behaviour before the cancellation of the policy.

Logistic models are usually estimated using the maximum likelihood method (Agresti, 2002; Agresti and Kateri, 2014; Cox and Snell, 1989). Once the maximum likelihood estimates have been obtained, they can be used to make statistical inferences concerning the relationships between the cancellation behaviour and the independent variables.

The variables used in the binary logistic regression are described in Table 2.

Considering the dependent and the independent variables, the maximum likelihood method was used to estimate the model parameters. The data analysis was carried out using IBM's SPSS software version 24.

The resulting logistic regression model is as follows:

Equation 1: Logistic Regression Model

$$\ln\left(\frac{P_i}{1-P_i}\right) = \widehat{\beta}_0 + \widehat{\beta}_1(\text{CUSTM\_PREM\_200} - 300) + \widehat{\beta}_2(\text{CUSTM\_PREM\_300} - 500)$$

$$+ \widehat{\beta}_3(\text{CUSTM\_PREM\_500+}) + \widehat{\beta}_4(\text{CUSTM\_CLAIM\_Y})$$

$$+ \widehat{\beta}_5(\text{CUSTM\_GENDER\_M}) + \widehat{\beta}_6(\text{CUSTM\_AGE})$$

$$+ \widehat{\beta}_7(\text{POL\_PREM\_200} - 300) + \widehat{\beta}_8(\text{POL\_PREM\_300} - 500)$$

$$+ \widehat{\beta}_9(\text{POL\_PREM\_500+}) + \widehat{\beta}_{10}(\text{POL\_CLAIM\_Y})$$

$$+ \widehat{\beta}_{11}(\text{POL\_AGE\_2} - 5) + \widehat{\beta}_{12}(\text{POL\_AGE\_5+})$$

$$+ \widehat{\beta}_{13}(\text{POL\_INSTAL\_04}) + \widehat{\beta}_{14}(\text{POL\_INSTAL\_02})$$

$$+ \widehat{\beta}_{15}(\text{POL\_INSTAL\_01}) + \widehat{\beta}_{16}(\text{POL\_PAY\_DD})$$

$$+ \widehat{\beta}_{17}(\text{INTERM\_ANCIL}) + \widehat{\beta}_{18}(\text{INTERM\_AGENT\_IND})$$

$$+ \widehat{\beta}_{19}(\text{INTERM\_AGENT\_COMP}) + \widehat{\beta}_{20}(\text{INTERM\_BROKER})$$

$$+ \widehat{\beta}_{21}(\text{INTERM\_BANK}) + \widehat{\mu}_i$$

where $\ln\left(\frac{P_i}{1-P_i}\right)$ is the logit, $\widehat{\beta}_i$ the regression coefficients and $\widehat{\mu}_i$ the residuals.

4. Results

The results obtained from the integral logit model indicated in Table 3 reveal that, at the conventional level of $\alpha = 0.05$, considering the independent variables identified in the "data design" procedure, eight are not statistically significant, considering the p-values of the parameters as superior to 0.05, given the other variables in the regression.

A restricted version of the regression, however, suggests that the exclusion of some of the non-statistically significant variables, when considered individually, may reduce the p-value

Dependent variable	Description		Type	Values
PROD_CANC	Product cancelled		Categorical binary	Assumes the value 1 when the motor insurance policy is cancelled and 0 when the motor insurance policy is not cancelled

Independent variables	Description	Research topics	Representative papers	Type	Values
DIRECT	No intermediary	Intermediaries influence customer decisions to cancel their insurance policies	Verhoef and Donkers (2005) Brockett et al. (2008) Pinquet et al. (2011), Felício and Freire (2016) Dominique-Ferreira (2018)	Dummy (reference class)	Assumes value 1 when the policy has no intermediary, and 0 otherwise
INTERM_ANCIL	Ancillary			Dummy	Assumes value 1 when the policy has an ancillary intermediary, and 0 otherwise
INTERM_AGENT_IND	Individual agent			Dummy	Assumes value 1 when the intermediary of the policy is an individual agent, and 0 otherwise
INTERM_AGENT_COMP	Company agent			Dummy	Assumes value 1 when the intermediary of the policy is a company agent, and 0 otherwise
INTERM_BROKER	Broker			Dummy	Assumes value 1 when the intermediary of the policy is a broker, and 0 otherwise
INTERM_BANK	Bank			Dummy	Assumes value 1 when the intermediary of the policy is a bank, and 0 otherwise

(*continued*)

Table 2.
Description of
dependent and
independent variables

Table 2.

Independent variables	Description	Research topics	Representative papers	Type	Values
POL_PREM_−200	Policy premium inferior to € 200	Higher premium policies have a higher probability of being cancelled	Beloucif et al. (2004), Guillen et al. (2009), Fu and Wang (2015), Frees et al. (2018)	Dummy (Reference class)	Assumes value 1 when the premium of the policy is inferior to €200 and 0 otherwise
POL_PREM_200–300	Policy premium is equal or superior to €200 and inferior to €300			Dummy	Assumes value 1 when the premium of the policy is equal or superior to €200 and inferior to €300, and 0 otherwise
POL_PREM_300–500	Policy premium is equal or superior to €300 and inferior to €500			Dummy	Assumes value 1 when the premium of the policy is equal or superior to €300 and inferior to €500, and 0 otherwise
POL_PREM_500+	Policy premium is equal or superior to €500			Dummy	Assumes value 1 when the premium of the policy is equal or superior to €500, and 0 otherwise
POL_CLAIM_Y	Policy claims	Claims increase the probability of insurance cancellation	Guillen et al. (2003) Kofman and Nini (2013) Guillen et al. (2009)	Dummy	Assumes value 1 when the policy has, at least, one claim, and 0 otherwise
CUST_CLAIM_Y	Customer claims		Paredes (2018)	Dummy	Assumes value 1 when the customer has, at least, one claim in any policy in force, and 0 otherwise

(continued)

Independent variables	Description	Research topics	Representative papers	Type	Values
POL_INSTAL_12	Monthly payments	Annual payments that do not require interaction with the insurance company reduce the probability of insurance cancellation	Guillen et al. (2008) Frees et al. (2018) Paredes (2018)	Dummy (Reference class)	Assumes value 1 when the policy is paid in 12 instalments, and 0 otherwise
POL_INSTAL_04	Quarterly payments			Dummy	Assumes value 1 when the policy is paid in four instalments, and 0 otherwise
POL_INSTAL_02	Semi-annual payments			Dummy	Assumes value 1 when the policy is paid in two instalments, and 0 otherwise
POL_INSTAL_01	Annual payments			Dummy	Assumes value 1 when the policy has an annual payment, and 0 otherwise
POL_PAY_DD	Payment by direct debit on the bank account			Dummy	Assumes value 1 when the payment method is a direct debit from a bank account, and 0 when the payment method is not a direct debit from a bank account
CUSTM_PREM_−200	Customer premium is less than €200	The probability of insurance cancellation increases with the total value of premiums paid by the customer	Pinquet et al. (2011) Bolancé et al. (2016) Jeong et al. (2018)	Dummy (Reference class)	Assumes value 1 when the total value of customer premiums is inferior to €200, and 0 otherwise
CUSTM_PREM_200-300	Customer premium is equal to or more than €200 and less than €300			Dummy	Assumes value 1 when the total value of customer premiums is equal or superior to €200 and inferior to €300, and 0 otherwise
CUSTM_PREM_300-500	Customer premium is equal to or more than €300 and less than €500			Dummy	Assumes value 1 when the total value of customer premiums is equal or superior to €300 and inferior to €500, and 0 otherwise
CUSTM_PREM_500+	Customer premium is equal to or more than €500			Dummy	Assumes value 1 when the total value of customer premiums is superior to €500 and 0 otherwise

(*continued*)

Table 2.

Table 2.

Independent variables	Description	Research topics	Representative papers	Type	Values
CUSTM_GENDER_M	Customer gender	The sociodemographic characteristics of customers, such as gender or age, affect its insurance lapsing behaviour	Ayuso et al. (2018) Frees et al. (2018) Taylor (2016), de la Llave et al. (2019)	Dummy	Assumes value 1 when the customer is male, and 0 when the customer is female
CUSTM_AGE	Customer age			Quantitative variable	Age in years, limited to the interval 18 to 90
POL_AGE_0–1	Policy age is inferior to two years	The probability of insurance cancellation decreases with the years it is in force with the insurer	Fu and Wang (2015), Frees et al (2018), Staudt and Wagner (2018)	Dummy (Reference class)	Assumes value 1 when the age of the policy is inferior to two years, and 0 otherwise
POL_AGE_2–5	Policy age is equal or superior to 2 years and inferior to 5 years			Dummy	Assumes value 1 when the age of the policy is equal or superior to two years and inferior to five years, and 0 otherwise
POL_AGE_5+	Policy age is equal or superior to 5 years			Dummy	Assumes value 1 when the age of the policy is equal or superior to five years, and 0 otherwise

Variables in the equation	$\widehat{\beta}$	S.E.	Wald	df	p-value	$e^{\widehat{\beta}}$
CUSTM_PREM_200–300	0.144	0.080	3.217	1	0.073	1.155
CUSTM_PREM_300–500	0.219	0.070	9.732	1	0.002	1.245
CUSTM_PREM_500+	0.433	0.077	3.1814	1	0.000	1.542
CUSTM_CLAIM_Y	0.054	0.089	0.372	1	0.542	1.055
CUSTM_GENDER_M	−0.115	0.057	4.096	1	0.043	0.892
CUSTM_AGE	0.000	0.002	0.030	1	0.863	1.000
POL_PREM_200–300	0.028	0.083	0.113	1	0.737	1.028
POL_PREM_300–500	−0.377	0.095	1.5613	1	0.000	0.686
POL_PREM_500+	0.710	0.181	1.5443	1	0.000	2.033
POL_CLAIM_Y	0.255	0.106	5.756	1	0.016	1.290
POL_AGE_2–5	0.301	0.056	2.9206	1	0.000	1.351
POL_AGE_5+	0.345	0.080	1.8833	1	0.000	1.412
POL_INSTAL_04	0.118	0.164	0.520	1	0.471	1.125
POL_INSTAL_02	−0.258	0.150	2.972	1	0.085	0.773
POL_INSTAL_01	−0.544	0.143	1.4361	1	0.000	0.581
POL_PAY_DD	−1.105	0.089	1.52909	1	0.000	0.331
INTERM_ANCIL	0.646	0.257	6.310	1	0.012	1.909
INTERM_AGENT_IND	0.537	0.139	1.4905	1	0.000	1.711
INTERM_AGENT_COMP	0.492	0.138	1.2791	1	0.000	1.636
INTERM_BROKER	0.290	0.167	3.021	1	0.082	1.337
INTERM_BANK	0.094	0.292	0.103	1	0.748	1.098
Constant	−0.294	0.221	1.775	1	0.183	0.745
Source(s): IBM SPSS Outputs and own calculations						

Table 3.
Unrestricted logistic
regression model
estimation results

of the remaining variables. It is thus necessary to test whether all the coefficients associated with those variables can be jointly equal to zero.

Following the stepwise method, considering the non-rejection of the null hypothesis of each variable as significantly different from 0, to $\alpha = 0.05$, the non-significant variables were successively removed, in descending order of the p-values, until all the coefficients presented p-values under 0.05. The resulting restricted logistic regression model estimation is presented in Table 4.

In addition to the 13 explanatory variables initially considered statistically significant, two variables ("total customer premium between €200 and €300 and" Semi-annual payments') which were non-significant in the unrestricted logistic regression model become significant in the restricted model, with p-values, respectively, equal to 0.041 and 0.001, hence inferior to the reference value of 0.05.

The restricted model was evaluated in relation to the integral model, testing the null hypothesis that the excluded parameters are not significantly different from 0, to $\alpha = 5\%$:

$$H_0: \beta_4 = \beta_6 = \beta_7 = \beta_{13} = \beta_{20} = \beta_{21} = 0$$

The G^2 test indicates that the null hypothesis H_0 is not rejected, concluding that the restricted model reveals a better explanatory capacity than the original model.

$$G^2(6) = X_0^2 - X_R^2 = -2LL_0 - (-2LL_R) = 9300.941 - 9296.662 = 4.279 < 12.592(\chi^2, 6\,\mathrm{df})$$
$$(\mathrm{df} = 21 - 15 = 6, \alpha = 0.05)$$

The resulting restricted logit model is as follows:

Variables in the equation	$\widehat{\beta}$	S.E.	Wald	df	p-value	$e^{\widehat{\beta}}$
CUSTM_PREM_200–300	0.153	0.075	4.175	1	0.041	1.166
CUSTM_PREM_300–500	0.227	0.068	1.0999	1	0.001	1.255
CUSTM_PREM_500+	0.447	0.069	4.1643	1	0.000	1.564
CUSTM_GENDER_M	−0.114	0.056	4.078	1	0.043	0.893
POL_PREM_300–500	−0.379	0.092	1.7073	1	0.000	0.684
POL_PREM_500+	0.712	0.178	1.6078	1	0.000	2.038
POL_CLAIM_Y	0.306	0.072	1.8275	1	0.000	1.358
POL_AGE_2-5	0.299	0.055	2.9371	1	0.000	1.349
POL_AGE_5+	0.345	0.077	2.0100	1	0.000	1.412
POL_INSTAL_02	−0.337	0.105	1.0230	1	0.001	0.714
POL_INSTAL_01	−0.626	0.094	4.4581	1	0.000	0.535
POL_PAY_DD	−1.139	0.083	1.87243	1	0.000	0.320
INTERM_ANCIL	0.472	0.233	4.098	1	0.043	1.604
INTERM_AGENT_IND	0.362	0.087	1.7415	1	0.000	1.436
INTERM_AGENT_COMP	0.316	0.084	1.4332	1	0.000	1.372
Constant	−0.015	0.127	0.013	1	0.909	0.986

$X_0^2 - X_R^2 = -2\text{LL}_0 - (-2\text{LL}_R) = 9300{,}941 - 9296{,}662 = 4{,}279$

Source(s): IBM SPSS Outputs and own calculations

Table 4.
Results of the restricted logistic regression model estimation and test of exclusion restrictions

Equation 2: Restricted Logistic Regression Model

$$\ln\left(\frac{P_i}{1-P_i}\right) = \widehat{\beta}_0 + \widehat{\beta}_1(\text{CUSTM\_PREM\_200}-300) + \widehat{\beta}_2(\text{CUSTM\_PREM\_300}-500)$$

$$+ \widehat{\beta}_3(\text{CUSTM\_PREM\_500+}) + \widehat{\beta}_5(\text{CUSTM\_GENDER\_M})$$

$$+ \widehat{\beta}_8(\text{POL\_PREM\_300}-500) + \widehat{\beta}_9(\text{POL\_PREM\_500+})$$

$$+ \widehat{\beta}_{10}(\text{POL\_CLAIM\_Y}) + \widehat{\beta}_{11}(\text{POL\_AGE\_2}-5) + \widehat{\beta}_{12}(\text{POL\_AGE\_5+})$$

$$+ \widehat{\beta}_{14}(\text{POL\_INSTAL\_02}) + \widehat{\beta}_{15}(\text{POL\_INSTAL\_01})$$

$$+ \widehat{\beta}_{16}(\text{POL\_PAY\_DD}) + \widehat{\beta}_{17}(\text{INTERM\_ANCIL})$$

$$+ \widehat{\beta}_{18}(\text{INTERM\_AGENT\_IND}) + \widehat{\beta}_{19}(\text{INTERM\_AGENT\_COMP}) + \widehat{\mu}_i$$

According to the estimates produced by the restricted logistic regression model (Table 4), there are two significant predictors of insurance cancellation related to the customers' characteristics, which are the total premium paid ("total customer premium between €200 and €300", "total customer premium between €300 and €500" and "total customer premium above €500") and gender (male); five significant predictors related to the insurance policy: the premium, but in this case, only above €300 ("policy premium between €300 and €500" and "policy premium above €500"); the existence of claims; the number of years it has been in force ("policy age between 2 and 5 years" and "policy age above 5 years"); whether payment is annual or semi-annual; and the method of payment as "direct debit"; and three types of distribution channels, which are the ancillary, the individual agents and the company agents.

Considering the impact on the logit, determined by the restricted logistic regression model, the probability of a cancellation increases with the total premium paid by the customer, the premium of the policy being above €500, the existence of claims in the policy, the age of the policy and three types of intermediaries, which are the ancillary, individual agents and company agents.

All other variables being equal, the higher total premiums paid by the customer and the premium of the policy, when above €500, the higher the probability that it will be cancelled. The marginal impact on the logit of the total premium paid by the customer, considering its highest interval (above €500), is 0.447, and for the policy premium, also at the highest value interval (above €500), is 0.712. In these cases, the odds ratios are, respectively, 1.564 and 2.038.

A claim on the policy, all other factors being equal, also increases the probability of cancellation. The marginal impact in the logit is 0.306 and the odds ratio 1.358.

Still considering the assumption that all other variables remain equal, the older the policy, the higher its probability of cancellation, considering the marginal impact on the logit of policy age between 2 and 5 years (0.299) and above 5 years (0.345). In these cases, the odds ratio is, respectively, 1.349 and 1.412.

Ancillary intermediaries – the individual agents and the company agents – also increase the probability of insurance cancellation. Accordingly, the marginal impact on the logit of ancillary, the least committed distribution channel in the insurance industry (0.472), is higher than for individual agents (0.362), but smaller than for company agents (0.316). The odds ratios, in these three cases are, respectively, 1.604, 1.436 and 1.372.

Conversely, the impact on the logit, determined by the restricted logistic regression model (Table 4), reveals a decreased probability of cancellation when the customer is male, the policy premium is between €300 and €500, the frequency of payments is lower, annual or semi-annual and the payment method is a direct debit from a bank account. The marginal impact on the logit varies between −1.139 (for direct debit as payment method) and −0.114 (for male customers). In these two cases, the odds ratios are, respectively, 0.320 and 0.893.

According to the results produced by the restricted logistic regression model, six factors are not statistically significant predictors of insurance cancellation: a customer's previous claims considering all their policies, customer age, a policy with premiums below €300, quarterly instalment payments and the intermediation of brokers or banks.

The final restricted model allows the probability of a motor insurance cancellation to be calculated. For instance, for an insurance policy used in a company for three years, with a premium of € 350, without claims, for whom the customer is male and who pays a total of €700 annually for their motor insurance policies, without instalments, by direct debit from a bank account, directly written by the insurance company and without an intermediary, the logit can be estimated with the following equation:

$$\ln\left(\frac{\widehat{P}_i}{1-\widehat{P}_i}\right) = -0.015 + 0.447(\text{CUSTM\_PREM\_500+}) - 0.114(\text{CUSTM\_GENDER\_M})$$
$$+ 0.299(\text{POL\_AGE\_2} - 5) - 0.379(\text{POL\_PREM\_300} - 500)$$
$$- 0.626(\text{POL\_INSTAL\_01}) - 1.139(\text{POL\_PAY\_DD}) = -1.527$$

Accordingly, the probability of this insurance being cancelled can be found from the following equation:

$$\widehat{P}_i = \frac{e^{y_i}}{1 + e^{y_i}} = \frac{e^{-1.527}}{1 + e^{-1.527}} = 0.178$$

The probability of this policy being cancelled is therefore 0.178, which means that 17.8% of insurance policies in these conditions will be cancelled.

The results of the models allow us to draw conclusions regarding the hypothesis formulated above.

Hypothesis H1, "*Intermediaries influence customers*" *decision to cancel its insurance policies*", is rejected. The restricted version of the model (Table 4) demonstrates that, although ancillary, individual agents and company agents were statistically relevant to predicting insurance cancellation, the same is not true for brokers and banks. This conclusion confirms the findings of Paredes (2018) – that the acquisition of insurance through a sales agent is a determinant of churn, which is not verified if the channel is a broker. Verhoef and Donkers (2005) also found substantial evidence that some channels have a negative effect on customer retention, while others are associated with higher retention rates. From a different perspective, Christiansen *et al.* (2016) came to the same conclusion, confirming that contracts purchased from tied agents are less likely to lapse, highlighting the relevance of intermediaries as the exclusive distributors of a single insurance company for customer retention.

Hypothesis H2, "*Higher premium policies have a higher probability of being cancelled*", is not rejected, considering that the variable "policy premium above €500" increases the probability of cancellation, which is the opposite effect to that observed with the variable representing premiums below this interval. The marginal impact on the logit of these variables is positive, in the first case (0.712), increasing the probability of insurance cancellation, and negative in the second (−0.379), decreasing that probability. The odds ratios are, respectively, 2.038 and 0.684. Other variables for policy premiums are statistically non-significant and were omitted from the restricted model (Table 4).

Hypothesis H3, "*Claims increase the probability of insurance cancellation*", is not rejected. The independent variable "policy with claim" is statistically significant. According to the restricted model (Table 4), the existence of a claim increases, ceteris paribus, logit by 0.306, with an odds ratio of 1.358. The fact that the independent variable "policy with claim" did not reveal statistical significance in the restricted model (Table 4) may be interpreted as an arbitrage of customers, eventually induced by their intermediaries, in terms of only cancelling the policies for which premiums will increase as a consequence of making a claim, as in the case of motor insurance with the application of bonus-malus schemes (Ayuso *et al.*, 2018; Dionne and Harrington, 2017; Kofman and Nini, 2013), and not cancelling the policies that do not have claims or for which claims do not directly increase the premium.

Hypothesis H4, "*Annual payment intervals that do not require interaction with the insurance company reduce the probability of insurance cancellation*", is not rejected, as both variables, "annual payment" and "payment by direct debit", are statistically significant. Estimates of their parameters and exponentials, as shown in Table 4, indicate that, if all else is held constant, changing from a monthly payment, the reference category, to an annual payment induces a decrease of −0.626 in the logit, with an odds ratio of 0.535. A change in the payment method from an intermediated alternative to direct debit from a bank account induces a decrease of −1.139 in the logit, with an odds ratio of 0.320.

5. Discussion

Ancillary intermediaries and agents are determinants of insurance cancellation, as demonstrated in this study. Insurance customers tend to be more loyal to intermediaries than they are to insurers (Brophy, 2013a; Eckardt and Räthke-Döppner, 2010; Miotto and Parente, 2015; Twing-Kwong *et al.*, 2013). Different acquisition channels, however, affect customer retention differently (Verhoef and Donkers, 2005). The initiative and effort required to cancel insurance policies may be prompted by smaller intermediaries, non-exclusive to any insurer, with the objective of reducing the premium paid by customers who reap the benefits of an insurer's promotions and also benefit from the commissions resulting from its growth rate in new customers.

More valuable customers and higher premium policies tend to be more commonly targeted by the acquisition tactics of competitors, as they are more subject to cancellation. Large

polices have more negotiation power, and customers are more likely to switch insurance carrier if they do not receive favourable renewal prices or desirable coverage (Fu and Wang, 2015; Pick, 2014). Older policies in a company are also more vulnerable to being cancelled. Brand new policies are somewhat riskier and receive a premium discount relative to their risk (Kofman and Nini, 2013), which can inhibit their cancellation in the initial years with an insurance company.

The results also demonstrate that the existence of claims is a predictor of insurance cancellation, which is in line with Frees *et al.* (2018), who argued that customers with a claim have a higher tendency to lapse due to the fear that an unfavourable experience rating induces premium increases.

The finding that insurance cancellation is negatively correlated with payment by direct debit and without instalments is a consequence of the low frequency of contact between insurance companies and customers. The rare interactions between insurance companies and customers are usually associated with unpleasant situations, such as making payments and claims.

The low involvement with a product, as in the case of an insurance policy, leads customers to spend less time and effort searching that product, which can decrease the likelihood of identifying more attractive alternatives (Wirtz *et al.*, 2014). Increasing the frequency of instalments may contradict the effect of a customer's low involvement with insurance, which reduces the search for alternatives.

Direct debit from a bank account has a negative impact on product cancellation because if nothing is done, the default process is the automatic renewal of insurance, even if customers feel they should cancel and switch to another provider. In the case of paying insurance by direct debit from a bank account, passive behaviour has the consequence of not cancelling the policy.

As the market becomes saturated, it becomes more difficult to find new consumers, and as a consequence of the limited options to increase customer bases, companies sometimes make surprising offers to acquire a competitor's loyal customers (Woodham *et al.*, 2017). Aggressively attracting new customers, directly or through an intermediary, is thus a strategy used by the vast majority of insurers, threatening customer loyalty across the whole industry (Gelder *et al.*, 2018). The reduced levels of customer retention in the insurance industry are also, therefore, the responsibility of insurers, who are focussed on tempting customers to change providers through offers with unsustainably cheap starting premiums (Gelder *et al.*, 2018).

6. Conclusion and implications

This research aimed to improve comprehension of the dynamics behind insurance customers' decisions to cancel their insurance policies. It is vital for a retailer to fully understand the concept of customer loyalty because otherwise they will fail to collect, analyse and decide upon the right action with the correct data (Larsson and Broström, 2019). To decrease the current levels of product cancellation, insurance companies need to know their customers and identify those who are more likely to be targeted by competitors, such as those who pay more premiums or have older and more expensive policies. They must also pay attention to market dysfunctionalities that generate competitive disadvantages, such as immediate and substantial increases of premiums or the withdrawal of functionalities from policies after claims are made, especially if the concurrent offers do not consider this variable in their acquisition proposals. Insurance companies should also review the business processes that augment opportunities of cancellation, such as payment methods. In this case, the payment of premiums by direct means, such as a direct debit from a bank account and without instalments, should be clearly incentivised.

Insurance companies must integrate intermediaries who distribute insurance in their efforts to improve customer retention, developing long-term partnerships where their exclusivity is clearly compensated. New value propositions must be developed, increasing the weight of alternative forms of remuneration to the traditional and prevailing payment of commissions over the business volumes. New business indicators, either qualitative, such as customer satisfaction or the customer recommendations, or quantitative, such as retention rate or client seniority, measured by the average years customers are with the company, are important pillars for more effective retention strategies.

This research has improved the theoretical body of knowledge behind customer decisions to cancel their motor policies. The framework developed to identify the factors that are mainly associated with product cancellation, and to predict its probability, has demonstrated their reliability and robustness. The results demonstrated that the effect of intermediaries on customer retention must be considered.

The main contributions of this research to the insurance industry are, firstly, an improved understanding of the concept of customer loyalty, which is necessary for insurance companies to collect, analyse and decide upon the right action with the correct data. The identification of the factors that insurance companies must adequately manage in order to reduce product cancellation is another contribution. Finally, the importance of insurance companies to change their priorities from the acquisition to the retention of customers was highlighted. The excessive focus of insurance company strategies on the acquisition of customers is one of the reasons for the high levels of product cancellation in this industry.

The main limitation of this study is the restriction on data access. Insurance companies are significantly resistant to sharing their customer data – including with academic researchers – even in an anonymised form.

The impact on customer loyalty from the disruptive value propositions of new insurance providers, sustained in digital frameworks, is a relevant avenue for future investigation regarding the development of research about customer retention in insurance.

There is also a clear tendency to increase interactions between insurance companies and customers, supported by new technologies. The impact on customer retention and loyalty from the development of valuable and frequent contacts between customers and insurance companies is another field for further research.

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Corresponding author
Manuel Leiria can be contacted at: manuel.m.leiria@gmail.com