

Factors influencing policyholders' acceptance of life settlements: a technology acceptance model

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ABSTRACT

The most significant market of life settlements (LSs) is the one in the USA. LSs are not present in some European countries, such as Spain. Therefore, LSs on life insurances can be seen as a novel and innovative financial service in those countries. This last consideration motivates this paper that analyses the key factors, from the seller's perspective, for the development of a secondary life insurance market through LSs in Spain. To do so, we use consumer-behaviour findings from academic research on the acceptance of new techs and services. Our analysis is grounded on the Technology Acceptance Model developed by Davis (1989) and Venkatesh et al. (2003) and it is adjusted by means of a Partial Least Squares - Structural Equation Modelling (PLS-SEM). Findings show that relevant variables to use LSs are Performance Expectancy, Expected Easiness and Social Influence constructs. Ethical Problems are not relevant in the decision of accepting LSs.

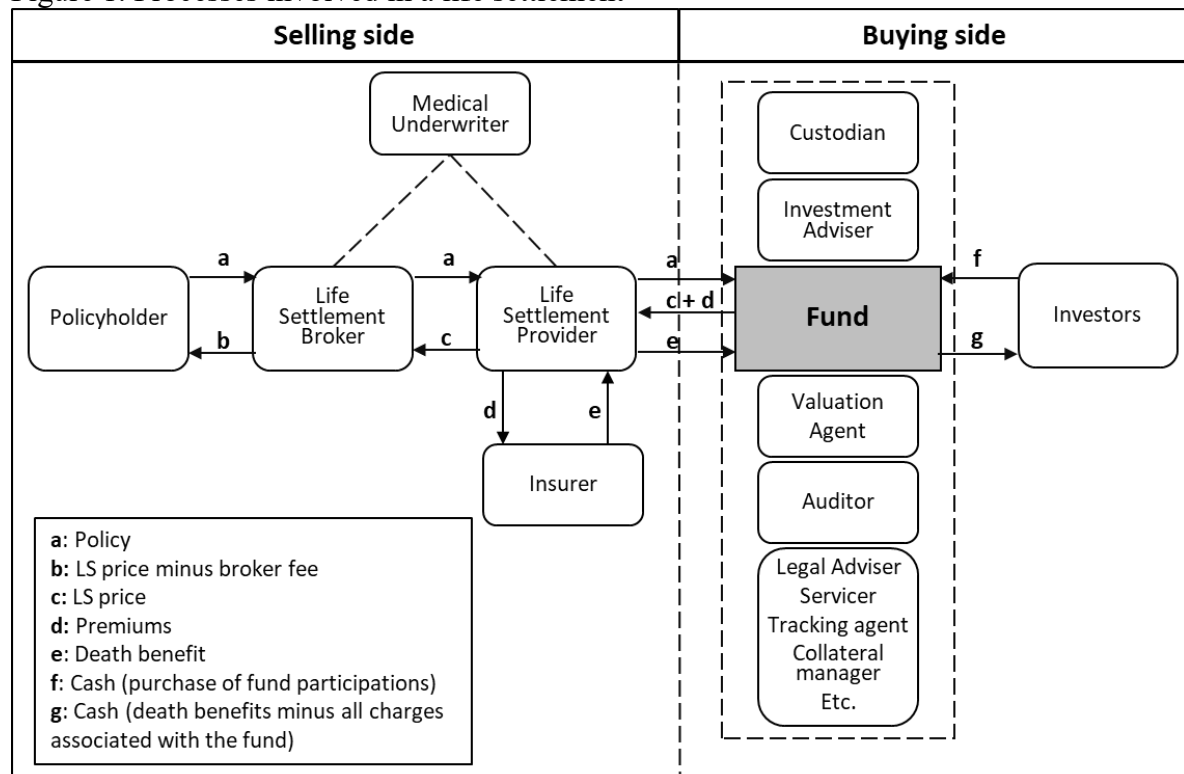
KEYWORDS: life insurance, secondary life insurance market, life settlements, Technology Acceptance Model, Unified Theory of Acceptance and Use of Technology, Partial Least Squares, Structural Equation Modelling.

1. INTRODUCTION

A life settlement (LS) about a life expectancy is a financial transaction whereby an existing life insurance policy is sold to an investor for a price greater than its cash surrender value (Ingraham and Salani, 2004). In this way, the investor undertakes to pay, if any, the outstanding premiums and acquires the right to receive the death benefit when the insured dies. LSs settlements were legally established in 1911 in the USA (Braun et al., 2019) by a Supreme Court decision that stated life insurance policies to be an asset with all their valuation and sale rights. Viatical settlements (VSs), i.e., the sale of a policy when the insured has two years or less to live, became popular in the 1980s when the insureds were mainly people in last stages of AIDS (Giacalone, 2001). As a result of medical advances, AIDS ceased to be a terminal illness in the 1990s and VSs on this disease decreased, starting

then the growth of LSs as they are known nowadays (MacMinn and Zhu, 2017). In current LSs transactions, the insured is not terminally ill but usually a person over 65 years who has a life expectancy below the standard according to their age and sex (Giacalone, 2001). Therefore, since the 2000s, VSs have made up a small proportion of the secondary life insurance market (Lazarus, 2010). There are no official data on the current size of the LS market in the USA and the figures may vary depending on the source consulted. However, there is consensus on the fact that the volume of LSs negotiated has had a steady growth since the 2008 financial crisis (see, e.g., Magna Life Settlements, 2018; Beleutz and García, 2021). Figure 1 shows a possible representation of processes involved in LS transactions. Different investment models differ on the buying side (including an individual investor buying a single policy, a fund as depicted in this Figure, an institutional investor like a pension fund investing a portion of its assets in LSs, etc.).

Figure 1. Processes involved in a life settlement



Source: Own elaboration, adapted from Braun et al. (2016) and Andrés-Sánchez and González-Vila (2021).

The great development of the strong USA market for LSs can be justified, among others, by the fact that it can generate several desirable effects in the life insurance industry:

- This kind of transactions facilitates obtaining cash to people in situations of high vulnerability due to their age and/or health. Likewise, LSs are priced with mortality probabilities adjusted to the insured's real situation instead of the standard ones. Thus, the amount obtained by the policyholder with the LS transaction is greater than its cash surrender value (Doherty and Singer, 2003).
- An LS market avoids the monopsonistic position of insurers in life markets (Rosenfeld, 2009), i.e., the insurance company is no longer the only possible buyer of the policy it issued. Despite the supposedly negative impact of that market on the insurers' margins due to the loss of that position, the existence of an LS market with a significant size always ends up benefiting all participants in the primary market. Indeed, LSs improve the transparency of this primary market, its price formation and, since policyholders can

see them as an alternative asset to the traditional ones, LSs also increase the demand of life insurance policies (Doherty and Singer, 2003). Gatzert et al. (2009) indicate that an increase in demand volumes in the primary market implies, per se, a great opportunity to expand the possibilities and penetration of the insurance industry. Furthermore, Rosenfeld (2009) detects that, from the mid-2000s, many life companies are involved in the LS market, since they understand that LSs provide value to their clients. Due to their experience, insurers have a competitive advantage when investing in LSs. In fact, insurance companies are currently one of the largest buyers in the secondary market based on LSs (The McGriff Alliance, 2018). In this regard, life insurers can understand LSs as investments, but also a part of a hedging strategy of their issued policies (Wang et al., 2011).

- From an investor perspective, LSs markets can often have higher returns than those of fixed income and equity markets (Braun et al., 2016; Giaccotto et al., 2017). Nevertheless, it should be noted that this refers to ex ante expected returns, which are closely linked to the life expectancy used to price the LS, and that final returns depend on the insured's actual date of death. On the other hand, investing in LSs allows a portfolio diversification in an asset class whose underlying is at most weakly correlated to traditional investments (Rosenfeld, 2009 and Bajo et al. 2013).
- LSs were created in response to a need for policyholders with reduced life expectancy. If LSs become common transactions and so insurers' margin from those surrendered contracts disappears, they may be forced to create and offer new products tailored to the needs of prospective policyholders. In this sense, Rosenfeld (2009) argues that LS markets will force significant changes to life insurance assumptions, thinking and products.

However, LSs are also associated with a large number of moral and ethical dilemmas that have been pointed out by several authors (e.g., Andrés-Sánchez, 2020). Without the aim to be exhaustive, we remark the following concerns:

- A usual argument against LSs is that they modify the economic purpose of life insurances (Gatzert, 2010). Thus, it is said that the objective of providing economic protection to the insured's beloved ones turns into a bet on his or her date of death (Blake and Harrison, 2008), i.e., the new policy owner has not any insurable interest, it is lost. Leimberg (2005) points out that in the secondary and tertiary market¹ for life insurance policies, insureds lose their dignity by being reduced to financial assets such as stocks or bonds.
- Investing in conventional assets generates "good wishes", but the purchase of an LS may induce "bad wishes" in the investor. Investments in assets such as bonds or stocks are benefited from the issuer's business success. On the contrary, the investor of an LS obtains a greater profit from an early death of the insured (Andrés-Sánchez, 2020).
- Nurnberg and Lackey (2010) and Glac et al. (2012) point out that LSs are often carried out under a high degree of emotional stress for the policyholder and, many times, without enough time to process the available information and make an optimal decision. In many cases, the insured has a very reduced life expectancy and urgently needs cash to pay for expensive medical care. Therefore, it is reasonable to assume that the seller's emotional situation is not good enough to negotiate a fair price.
- Insureds lose a lot of privacy (Glac et al., 2012) since a large amount of medical information must be provided to price the policy in the secondary and tertiary markets.

¹ The tertiary market consists of the sale of an LS that has already gone through the secondary market.

- There is great information asymmetry between policyholders and the LS industry, with the selling side being the one with the most information on the insured's health. Moreover, adverse selection or moral hazard situations are very likely to occur thus affecting the buying side (Bauer et al., 2020).
- Due to the loss of their monopsonist position, an expansion of LS markets might reduce life insurers benefits. This reduction may trigger widespread increases in premiums for any type of insurance, which could hurt young families, low-income households and small business who need basic financial protection coverage (Braun and Xu, 2019).
- Parties involved in LSs can have a conflict of interest (Kohli, 2006). Specifically, medical underwriting is another aspect of the LS industry that has historically been susceptible to dubious moral practices. A critical factor for investors is the reliability of the life expectancy report. The value of an LS is highly dependent on the insured's life expectancy whose estimation relies heavily on medical underwriting. Nevertheless, underwriters rarely agree on life expectancy, leading to valuation disparities. Since medical underwriters are under pressure from intermediaries to facilitate LSs transactions, they might underestimate insureds' life expectancy (Braun et al., 2016). In this regard, based on the data of LS samples from 2011 to 2016, Xu (2020) analyses patterns of medical underwriters and investigates systematic differences in their estimation. The results of the paper show that an underwriter can, relative to peers, act more conservatively (issuing longer life expectancy estimates) for a cohort while more aggressively (issuing shorter life expectancy estimates) for another.

This paper investigates the factors influencing the acceptance, by policyholders, of LSs in Spain. This type of transactions do not exist in this country and the work assumes that if LSs were present, they would be traded under the same business model as in the USA. To carry out the investigation, a survey conducted to potential Spanish policyholders is used (see the Appendix).

Mendoza and Monjas (2011) carry out a comprehensive analysis of the Spanish life insurance market, describing its strengths, weaknesses, opportunities and threats, and pointing out the main drivers and barriers to the demand and supply of LSs. In their paper, they conclude that although the relative weight of life insurance in Spain is lower than in the USA, both in penetration and in density, there exist the necessary conditions for the implementation of a secondary life insurance market through LSs, which should be undertaken in phases, and laws in force in that country do not prevent the development of such a market. Moreover, they also propose strategies to implement this secondary market and argue that its existence can be an incentive to the demand for life insurances in the primary market since prospective policyholders will be offered liquidity greater than the surrender value in the event of a reduced life expectancy. This demand could increase in the near future as Spanish boomers approach retirement age.

Our analysis is grounded on the Technology Acceptance Model (TAM) by Davis (1989) and the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003) and Venkatesh et al. (2012), which have been widely applied in the evaluation of the acceptance of new financial technologies. Technology acceptance theories and models have discussed the individuals' behaviours and their acceptance ability to adopt new technologies according to some constructs and items. The TAM has been one of the most influential models of technology and innovative services acceptance, with two primary factors influencing an individual's intention to use them: Performance Expectancy and Expected Easiness. The UTAUT model was designed, on the contrary, to have three direct effects from three determinants on the behavioural intention, which are Performance Expectancy, Expected Easiness and Social Influence.

In many countries, such as Spain, LSs do not currently exist (Andrés-Sánchez and González-Vila, 2021). Therefore, from the perspective of a Spanish policyholder, they can be seen as a novelty in the life insurance market. We feel that the findings of this work will be helpful for the development of a possible secondary life insurance market since they allow determining which the relevant factors for its successful development are. In this sense, we must emphasize that although the applications of TAM/UTAUT to evaluate innovations in the insurance business are scarce, there are some findings in this regard. For example, while Milanović et al. (2020) evaluate novel technologies in car insurance, Legowo (2018) do it for the attitude of the employees of an insurance company towards a new policy processing system. Likewise, Oktariyana et al. (2019) evaluate, in the Indonesian insurance market, a new special non-cash system for the payment of insurance premiums and claims, and Huang et al. (2019) analyse the willingness of policyholders to buy contracts online.

It is also interesting to highlight the usefulness of the UTAUT framework to assess the intention to use cryptocurrencies for financial purposes (Albayati et al., 2020; Gil-Cordero et al., 2020; Palos-Sánchez et al., 2021). We are aware that cryptocurrencies are in many ways different from LS. However, they also have several common settings. For example, in many countries, cryptocurrencies can be seen as innovative and alternative financial tools to bonds, stocks or bank deposits. Likewise, their prices have a low (or null) correlation with the evolution of the bond and stock market.

The structure of the paper is as follows. In the second section, we review the literature about recent applications of the TAM and the UTAUT paying special attention to financial aspects and how hypotheses to be tested must be understood in an LS context. Section 3 describes the material and quantitative methods used in this article. The fourth section describes our findings. The paper ends with a summary of the most important conclusions of our analysis, a reflection on their practical soundness and possible extensions of the work.

2. A MODEL TO ASSESS FACTORS THAT INFLUENCE THE POLICYHOLDERS' DECISION ABOUT LIFE SETTLEMENTS

The model and hypotheses used in this article are based on the consumer behaviour findings from the TAM by Davis (1989), further expanded by Venkatesh and Davis (2000), and its extension, the UTAUT, in Venkatesh et al. (2003) and Venkatesh et al. (2012). The concepts that arise from these behavioural models are commonly used to explain how an innovative new technology, product or service is accepted by individuals. The TAM proposes a positive direct relation between the so-called Performance Expectancy (PE), the Expected Easiness (EE) and the Intention to Use (IU) that product. Davis (1989) points out that if users perceive a service difficult to use, this drawback underrates its performance advantages. Therefore, the TAM supposes a positive influence of EE on PE that indirectly affects IU. The TAM also accepts the existence of other variables affecting IU. These factors depend on the evaluated product and are usually modelled influencing PE and/or EE, and so, indirectly, IU, but not directly this last construct. In addition to PE and EE, the UTAUT by Venkatesh et al. (2003) explicitly includes a direct effect of the dimension Social Influence (SI) on IU, but the authors also indicate that their model can accept more input factors. For example, they include so-called facilitating conditions. In Venkatesh et al. (2016), a detailed exposition of the extensions of the original UTAUT between 2003 and 2014 can be found. As far as our study is concerned, in order to explain the acceptance of LSs by policyholders, we consider the dimensions PE and EE from TAM and UTAUT, and

SI from UTAUT. We also include a factor related to Perceived Ethical Problems (EP) particularly linked to LSs. Factors and hypotheses are described below.

Performance expectancy (PE), also called Perceived Usefulness, is the degree to which a person perceives that the new product will improve his/her utility (for example, in a context of financial planning for retirement). It is the main motivation to use that product not only from consumer-behaviour point of view (i.e., the policyholder in our paper) but also from the analytical point of view in consumer welfare models (for LSs see Fang and Wu, 2020). Findings in the academic literature suggest that PE is the most decisive factor to explain the IU of new financial services (see Table 1). Papers that do not find such a relation are rare. In this regard, we can outline Moon and Hwang (2018) and Mahfuz et al. (2016). In our context, the influence of PE on IU is clear since policyholders can obtain a better price for their life insurance policy through an LS than its surrender value (Doherty and Singer, 2004). On the other hand, however, the policyholder must provide a lot of private information about insured's health or life style and must also eliminate beloved ones as beneficiaries. These facts reduce the performance expectancy in LSs by policyholders and this reduction may not be the same among different policyholders. In summary, the following hypothesis can be stated:

Hypothesis 1 (H1). Performance Expectancy (PE) positively influences the Intention to Use (IU) LSs by policyholders.

Expected easiness (EE) is the perception of the absence of difficulties to carry out an LS. Figure 1 lets intuiting that LSs have a complex architecture due to the number of agents and processes involved in this kind of agreements (Braun et al., 2016). In this respect, getting the surrender value of the life insurance policy may be perceived easier than carrying out an LS trade. The large number of processes required to agree on an LS (calculation of adjusted mortality probabilities, life expectancy prediction, steps to be followed by brokers, providers, investors, etc.) may represent a waste of time and cause frictions in the market, thus diminishing the advantages and margins of an LS with respect to the surrender value. Notice that EE not only affects IU but also, as proposed by Davis (1989), affects PE (see Table 1). So, the following hypotheses are to be tested.

Hypothesis 2a (H2a). Expected Easiness (EE) positively influences the Intention to Use (IU) LSs by policyholders.

Hypothesis 2b (H2b). Expected Easiness (EE) positively influences the Performance Expectancy (PE) of LSs for policyholders.

We also assess the effect of the construct SI, which is explicitly proposed as a direct determinant on IU in the UTAUT by Venkatesh et al. (2003). This construct is related to the influence that people close to the policyholder, such as relatives, friends, a trusted financial advisor or his/her usual insurance broker, may have on the intention to use LSs. As stated in Section 1, due to the insured's impaired health status, LSs are usually negotiated under a policyholder's emotional high-stress situation and without enough time to carefully process the information available to make the decision. On the other hand, selling a life policy by means of an LS may suppose a loss of the insured's dignity since that policy becomes a bet on the date of his/her death and it is traded like any other security. Likewise, the initial purpose of the life insurance policy, which was giving economic protection to the people loved by the insurer, is lost after arranging the LS. So, the opinion of people close to the policyholder may be important to him/her and he/she is often accompanied by those people in the decision to agree on an LS. Although there is less evidence of the link between SI and

IU than in the case of PE and EE, there are still a large number of findings on it (see Table 1).

Furthermore, the inherent complexity of LSs suggests that the opinion of a trusted financial advisor or the usual insurance broker can be valuable to the policyholder. Then, it is reasonable to assume that SI could also impact the PE of that financial transaction since the favourable opinion of those professionals about the usefulness of LSs may induce policyholder and/or close persons to him/her that perception. Results in Shin (2013), Albayati et al. (2020) and Nuryyev et al. (2020) suggest that a positive influence of SI on PE exists in several circumstances. So, the following two hypotheses will be tested:

Hypothesis 3a (H3a). Social Influence (SI) positively influences the Intention to Use (IU) LSs by policyholders.

Hypothesis 3b (H3b). Social Influence (SI) positively influences the Performance Expectancy (PE) of LSs for policyholders.

Notice that the exposition in the introduction, based on existing literature, leads us to consider that ethical implications of agreeing on an LS are more complex than those of other financial new technologies or financial products collected in Table 1, such as, for example, investing in cryptocurrencies or using m-banking. Therefore, the last factor considered in this paper is EP of LSs on the seller side. Often times, acceptance of a new product is influenced by ethical factors (Murata et al., 2019; Pelegrín-Borondo et al., 2020 and Olarte-Pascual et al. 2021). In an LS context, some potential sellers may feel that an LS represents a loss of their dignity and privacy over their health status (Leimberg, 2005; Nurnberg and Lackey, 2010; Glac et al., 2012). So, under this perspective, the unethical perception of LSs can negatively influence IU even though LSs might be perceived as useful, or it may diminish LS utility and so PE. Therefore, the last two hypotheses to test are:

Hypothesis 4a (H4a). Perceived Ethical Problems (EP) negatively influences the Intention to Use (IU) LSs by policyholders.

Hypothesis 4b (H4b). Perceived Ethical Problems (EP) negatively influences the Performance Expectancy (PE) of LSs for policyholders.

Table 1. Review of recent findings on the interactions between PE, EE, SI and IU

Papers supporting that PE affects IU	
Kim et al. (2010); Martín-García and Sánchez-Gómez (2013); Shin (2013); Ofori et al. (2015); Faqih et al. (2016); Ma et al. (2017); Wang (2017); Yoon and Choi (2020).	New products (miscellanea)
Mendoza-Tello et al. (2018); Shahzad et al. (2018); Walton and Johnston (2018); Mazambani and Mutambara (2019); Mendoza-Tello et al. (2019); Roussou et al. (2019); Albayati et al. (2020); Arias-Oliva et al. (2019); Gil-Cordero et al. (2020); Nuryyev et al. (2020); Sheel and Nath (2020); Arias-Oliva et al. (2021); Palos-Sánchez et al. (2021).	Cryptocurrencies/blockchain
Yu (2012); Kishore and Sequeira (2016); Nisha (2016); Verissimo (2016); Khan et al. (2017); Farah et al. (2018); Warsame and Ileri (2018); Hussain et al. (2019).	e-banking and m-banking
Jaradat and Al-Mashaqba (2014); Kim et al. (2018); Legowo (2018); Makanyeza and Mutambayashata (2018); Sánchez-Torres et al. (2018); Huang et al. (2019); Oktariyana et al. (2019).	New financial and insurance services (miscellanea)
Papers not supporting that PE affects IU	
Mahfuz et al. (2016).	e-banking and m-banking
Moon and Hwang (2018);	New products (miscellanea)
Milanović et al. (2020).	New financial and insurance services (miscellanea)
Papers supporting that EE affects IU	

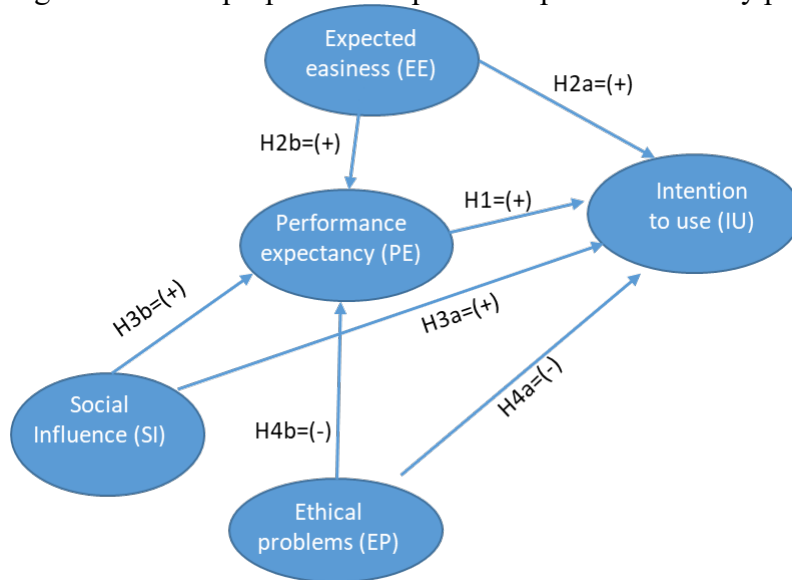
Kim et al. (2010); Martín-García and Sánchez-Gómez (2013); Shin (2013); Wang (2017); Ma et al. (2017).	New products (miscellanea)
Mendoza-Tello et al. (2018); Walton and Johnston (2018); Mazambani and Mutambara (2019); Mendoza-Tello et al. (2019); Albayati et al. (2020); Gil-Cordero et al. (2020); Nuryyev et al. (2020); Sheel and Nath (2020); Arias-Oliva et al. (2021); Palos-Sánchez et al. (2021).	Cryptocurrencies/blockchain
Kishore and Sequeira (2016); Nisha (2016); Veríssimo (2016); Warsame and Ireri (2018).	e-banking and m-banking
Jaradat and Al-Mashaqba (2014); Kim et al. (2018); Legowo (2018); Makanyeza and Mutambayashata (2018); Moon and Hwang (2018); Sánchez-Torres et al. (2018); Huang et al. (2019) (for subscribing on-line non-life insurances)	New financial and insurance services (miscellanea)
Papers not supporting that EE affects IU	
Ofori et al. (2015).	New products (miscellanea)
Shahzad et al. (2018); Arias-Oliva et al. (2019); Roussou et al. (2019).	Cryptocurrencies/blockchain
Yu (2012); Mahfuz et al. (2016).	e-banking and m-banking
Moon and Hwang (2018); Huang et al. (2019); Oktariyana et al. (2019); Milanović et al. (2020)	New financial and insurance services (miscellanea)
Papers supporting that EE affects PE	
Kim et al. (2010); Martín-García and Sánchez-Gómez (2013); Ofori et al. (2015); Ma et al. (2017); Wang (2017).	New products (miscellanea)
Shahzad et al. (2018); Walton and Johnston (2018); Mendoza-Tello et al. (2019); Albayati et al. (2020); Nuryyev et al. (2020); Palos-Sánchez et al. (2021).	Cryptocurrencies/blockchain
Jaradat and Al-Mashaqba (2014).	New financial and insurance services (miscellanea)
Papers not supporting that EE affects PE	
Roussou et al. (2019).	Cryptocurrencies/blockchain
Papers supporting that SI affects IU	
Wang (2017); Yoon and Choi (2020).	New products (miscellanea)
Walton and Johnston (2018); Mendoza-Tello et al. (2018); Albayati et al. (2020); Gil-Cordero et al. (2020); Nuryyev et al. (2020); Arias-Oliva et al. (2021).	Cryptocurrencies/blockchain
Kishore and Sequeira (2016); Mahfuz et al. (2016); Farah et al. (2018).	e-banking and m-banking
Kim et al. (2018); Legowo (2018); Moon and Hwang (2018).	New financial services (miscellanea)
Papers not supporting that SI affects IU	
Arias-Oliva et al. (2019); Mazambani and Mutambara (2019).	Cryptocurrencies/blockchain
Milanović et al. (2020)	New financial and insurance services (miscellanea)
Papers supporting that SI affects PE	
Shin (2013).	New products (miscellanea)
Albayati et al (2020); Nuryyev et al. (2020).	Cryptocurrencies/blockchain
Kishore and Sequeira (2016); Mahfuz et al. (2016); Farah et al. (2018).	e-banking and m-banking
Kim et al. (2018); Legowo (2018); Moon and Hwang (2018).	New financial services (miscellanea)
Papers not supporting that SI affects PE	
Wang (2017).	New products (miscellanea)
Jaradat and Al-Mashaqba (2014).	New financial services (miscellanea)

Note: Papers are ordered by year (first) and alphabetically (second).

Source: Own elaboration.

Figure 2 summarizes the set of relations that will be tested in this paper. Table 2 shows the constructs (dimensions or factors) we consider, their items and the theoretical foundation of the model proposed. It should be noted that, as considered in the TAM and the UTAUT, the constructs of the model proposed are reflective constructs, i.e., the constructs cause their items as opposed to formative cases in which the constructs are caused by their items.

Figure 2. Model proposed to explain acceptance of LSs by policyholders



Source: Own elaboration.

Table 2. Constructs used in this paper and their theoretical foundation

Construct/item	Theoretical foundation
Intention to use	
IU1. I may be interested in selling my life insurance through a life settlement transaction if the conditions to carry it out are met.	Adapted from Venkatesh and Davis (2000)
IU2. I predict that I would sell my life insurance through a life settlement if the conditions to carry it out are met.	
Performance expectancy	
PE1. The existence of a secondary life insurance market different from surrendering the policy will be useful for my financial decisions.	Adapted from Venkatesh et al. (2012)
PE2. The possibility of selling my life insurance policy in a secondary life insurance market at a price greater than its surrender value will increase the performance of my financial decisions.	
PE3. The existence of life settlements will help me achieve my goals more quickly.	
PE4. The possibility of selling the life insurance policy through a life settlement will allow improvement in my life standards.	
Expected Easiness	
EE1. Understanding how life settlement transactions work will be easy for me.	Adapted from Venkatesh et al. (2012)
EE2. Selling a life insurance policy through a life settlement will be clear for me.	
EE3. It will be easy for me to understand how secondary life insurance markets work.	
EE4. It will be easy for me to become an expert on secondary life insurance markets.	
Social Influence	
SI1. People who are important to me will feel that, if necessary, I must sell my life insurance through a life settlement.	Adapted from Venkatesh et al. (2012)
SI2. People who influence me will think that I should sell my life insurance through a life settlement instead of	

selling other assets that I have in my portfolio.

SI3. People whose opinions I value will approve of me agreeing on a life settlement.

Ethical problems

EP1. Selling a life insurance through a life settlement is unethical.

Proposed in this paper after analysing the existing LS literature.

EP2. The acquisition of a life policy by an investor is unethical.

Source: Own elaboration.

3. MATERIALS AND METHODS

3.1. Data Collection and sample profile

We have asked about LSs to people who have the potential to participate, from the seller side, in a secondary life insurance market. In this regard, it should be noted that some financial literacy is needed since, as outlined in Braun et al. (2019), understanding that a life insurance policy is a tradable asset is hardly known by the general public. Flanklin (2021) outlines that in the USA, i.e., the most important market of LSs in the world, “many Americans do not know about the life settlement option”. Therefore, data collection has been done through a structured survey addressed to people who have a university degree in a branch of the social sciences (economists, lawyers, etc.) and are linked to the insurance or financial industry (e.g., insurance researchers, actuaries, insurance brokers, insurance lawyers or financial advisors). So, due to their well-founded opinion, many of these people may influence insurance decisions made by policyholders. On the other hand, notice that traded life insurance must have a substantial face value. So, people in the questionnaire are over 35 years of age and usually have a monthly income of €2,000 or above. This ensures that people interviewed have not only knowledge about insurance matters, but also sufficient income to be life insurance policyholders with contracts with no low face values. They could also be personally interested in LSs as a way to sell their policy, if necessary.

The final number of people interviewed is 89, 42 are men and 46 women. Due to the number of constructs we have and the model estimation method we use, this sample size is enough. Indeed, Marcoulides and Saunders (2006) reflect on how small a sample can be in order to ensure sufficiently stable estimates and provide adequate levels of statistical power in a PLS-SEM analysis. They argue that, in general, although the sample size to select may depend on several factors, if the structural model has 7 relations between constructs (see Figure 2) a sample approximately equal to 80 may be adequate when scales present good psychometrical properties. Of course, adequate does not imply ideal, as it is preferable to use the largest possible sample sizes. The data was collected between December 15th, 2020 and April 20th, 2021.

The questionnaire, which is included in the Appendix, begins with an introductory explanation about LSs that is rather technical. It is easy to understand for the people interviewed, but not for those who lack some knowledge about life insurances. The explanation briefly describes the concept of an LS and summarizes the pros and cons of these agreements in a similar way to how it was done in Section 1. In their answers, the interviewees assume that they are policyholders of a life insurance, whose insured has a reduced life expectancy, and this may lead them to consider obtaining funds through an LS.

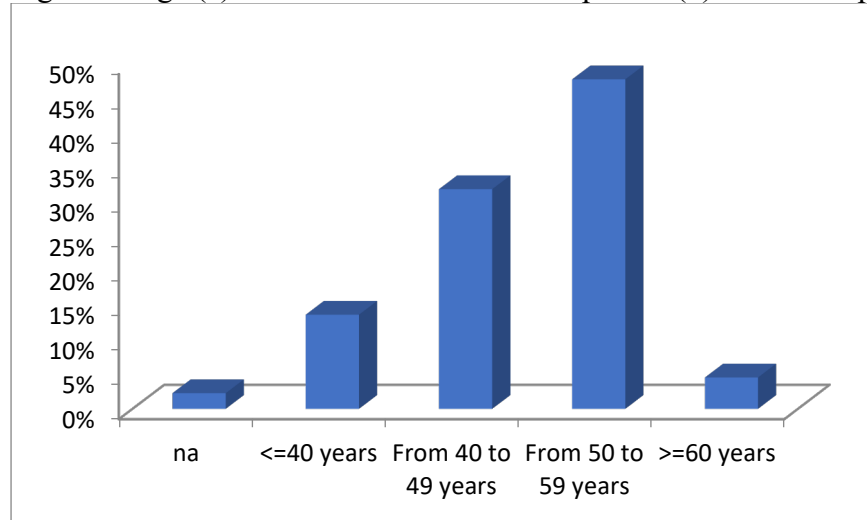
Regarding ethical approval: (1) all participants were given detailed written information about the study and the procedure; (2) no data related directly or indirectly to the subjects' health was collected and, thus, the Declaration of Helsinki was not generally mentioned

when the subjects were informed; (3) the anonymity of the collected data was ensured at all times; (4) no permission was obtained from a committee ethics approval, it was not required in accordance with applicable national and institutional guidelines and regulations; and (5) the voluntary completion of the questionnaire was taken as consent for the data to be used in the research, the informed consent of the participants was implied through survey completion.

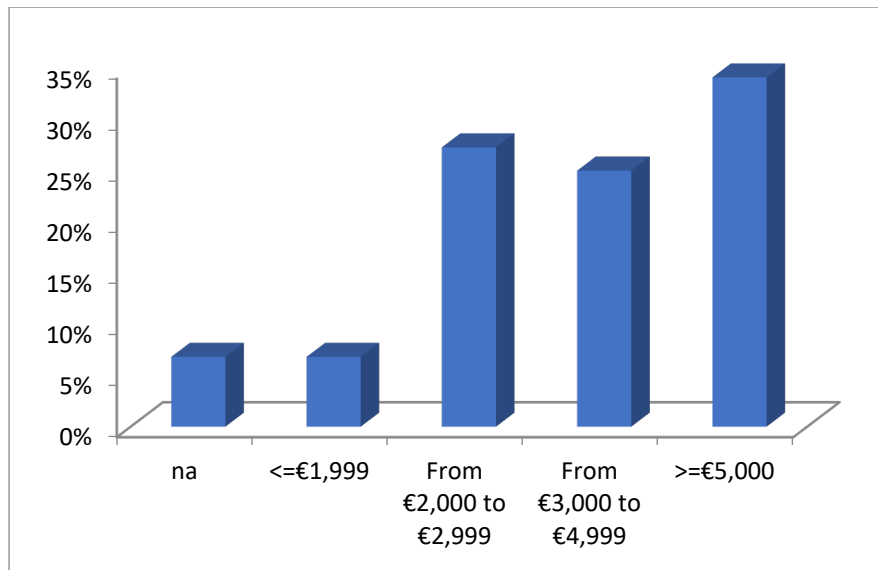
We have built up our model from those that are widely accepted and used in the literature on technology acceptance. In our paper, there are exactly 5 constructs. Four of them are based on Venkatesh and Davis (2000) and Venkatesh et al. (2012). We propose a new construct, EP, which is justified by the complexity of the ethical dimension of LSs. That construct is split into two items, which are related to ethical issues on both sides of the transaction, sellers and buyers. Table 2 shows in detail constructs used in this article, their items and their source.

As we pointed out above, the sample consisted of people over the age of 35 (in fact, 90% are over 40 years old) with a university degree and good knowledge about insurance. The monthly net household income is only less than €2,000 for 10% of the sample. Furthermore, 30% of the sample is above €5,000 and 85% is above €2,000. Figure 3 depicts these numbers. On the other hand, Table 3 shows some basic descriptive statistics of the results obtained from the interviewees. A measurement of Likert type from 0 (complete disagreement) to 10 (complete agreement) has been used.

Figure 3. Age (a) and net household income profile (b) of our sample



(a)



(b)

Source: Own elaboration.

Table 3. Descriptive statistics of items in our survey

Item	Mean	Median	Std. Dev	Q1	Q3	ICV
Intention to use						
IU1. I may be interested in selling my life insurance through a life settlement transaction if the conditions to carry it out are met.	4.88	5	2.97	3	8	5
IU2. I predict that I would sell my life insurance through a life settlement if the conditions to carry it out are met.	4.48	5	3.20	2	8	6
Performance expectancy						
PE1. The existence of a secondary life insurance market different from surrendering the policy will be useful for my financial decisions.	5.21	5	2.72	3	7	4
PE2. The possibility of selling my life insurance in a secondary market at a price greater than its surrender value will increase the performance of my financial decisions.	5.18	5	2.77	3	8	5
PE3. The existence of life settlements will help me achieve my goals more quickly.	5.03	5	2.90	3	8	5
PE4. The possibility of selling the life insurance through a life settlement will allow improving my life standards.	5.33	5	3.03	3	8	5
Expected Easiness						
EE1. Understanding how life settlement transactions work will be easy for me.	6.16	7	2.73	5	8	3
EE2. Selling a life insurance policy through a life settlement will be clear for me.	5.98	7	2.73	4	8	4
EE3. It will be easy for me to understand how secondary life insurance markets work.	5.99	6	2.60	4	8	4
EE4. It will be easy for me to become an expert on secondary life insurance markets.	5.67	6	2.58	4	8	4
Social Influence						
SI1. People who are important to me will feel that, if necessary, I must sell my life insurance through a life settlement.	5.13	5	2.86	3	8	5
SI2. People who influence me will think that I should sell my life insurance through a life settlement instead of	5.11	5	2.74	3	7	4

selling other assets that I have in my portfolio.

SI3. People whose opinions I value will approve of me agreeing on a life settlement.	5.75	6	2.67	4	8	4
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Ethical problems

EP1. Selling a life insurance through a life settlement is unethical.	5.13	5	2.67	3	7	4
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EP2. The acquisition of a life policy by an investor is unethical.	5.22	5	2.50	4	7	3
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Notes: (1) Q1, Q2 and Q3 stand for 1st, 2nd and 3rd Quartile. Likewise, ICV is the interquartile variation $ICV=Q3-Q1$. (2) Sample size is 89 people. (3) Answers scale ranks from 0 to 10.

Source: Own elaboration.

3.2. Statistical Methodology

In order to test the hypotheses formulated in Section 2 and check to which extend the model proposed in it can be validated, we use partial least squares structural equation modelling (PLS-SEM). It is beyond the scope of this article to provide a comprehensive revision of the considerations, assumptions, metrics or evaluation criteria required for PLS-SEM, which can be found in several papers (see, e.g., Hair et al., 2019). However, we reckon that some general ideas about PLS-SEM could be appropriate for a better understanding of this work. For many years, covariance-based structural equation modelling (CB-SEM) was the dominant method for analysing complex interrelationships between observed and latent constructs. In recent years, however, the number of published articles using PLS-SEM increased significantly relative to CB-SEM (Hair et al., 2019). As stated by Hair et al. (2019), PLS-SEM is nowadays widely applied in many social science disciplines, such as, e.g., organizational management, operations management, marketing management or strategic management. One of the most important reasons why researchers adopt PLS-SEM is that it enables complex models -with many constructs, items and structural paths- to be estimated without imposing distribution assumptions on the data. Furthermore, it can be performed when having small sample sizes (Hair et al., 2019). PLS-SEM estimates partial model structures by combining principal components analysis with ordinary least squares regressions (Hair et al., 2019).

The common process carried out when using PLS-SEM consists of several steps: 1) specification of the structural model, 2) specification of the measurement model, 3) data collection and examination, 4) model estimation, and 5) results evaluation. Since steps 1) to 3) has been already conducted, in Section 4 we focus on steps 4) and 5).

4. ESTIMATION AND VALIDITY OF THE MODEL

Software package Smart-PLS has been used to estimate the model in Figure 2 and item loadings. The first stage in evaluating PLS-SEM results involves assessing the measurement model of our reflective constructs. In reflective constructs, the items are manifestations of the unobservable latent construct and they should be highly correlated (Roy et al., 2012). Otherwise this will lead to a psychometrically weak measurement model. If the measurement model meets all the required criteria (see Hair et al., 2019), the structural model needs to be assessed. Like with most statistical methods, PLS-SEM has rules of thumb that serve as guidelines to evaluate model results.

4.1. Measurement model assessment

In order to verify individual reliability, Figure 4 shows that all item loadings of our model are ≥ 0.708 . Furthermore, it can be checked that the constructs present a composite reliability, ρ_A and a Cronbach's alpha always > 0.7 , confirming so their internal consistency reliability (see Table 4). The average variance extracted (AVE) in all constructs is equal or greater than 0.5, indicating that they explain at least 50% of the variance of their reflective items. Therefore, the convergent validity is met. Table 5 depicts the discriminant validity, which is also fulfilled. Indeed, we have checked that the heterotrait-monotrait (HTMT) ratio of the correlations is correct (< 0.85) in all cases. The highest value of HTMT is 0.71 for the correlation between IU and PE. Moreover, the square root of the AVE is greater than the correlations between constructs.

Table 4. Internal consistency (Cronbach's alpha, and composite reliability) and convergent validity (AVE)

Construct	Cronbach's Alpha	ρ_A	Composite Reliability	AVE
Intention to Use (IU)	0.882	0.889	0.944	0.894
Performance Expectancy (PE)	0.928	0.935	0.950	0.826
Expected Easiness (EE)	0.948	0.953	0.963	0.866
Social Influence (SI)	0.911	0.917	0.944	0.850
Ethical Problems (EP)	0.944	0.972	0.973	0.947

Source: Own elaboration.

Table 5. Discriminant validity

Construct	IU	PE	EE	SI	EP
Intention to Use (IU)	0.946	0.713	0.287	0.494	0.086
Performance Expectancy (PE)	0.652***	0.909	0.369	0.512	0.060
Expected Easiness (EE)	0.270*	0.351**	0.931	0.416	0.083
Social Influence (SI)	0.448***	0.468***	0.387**	0.922	0.100
Ethical Problems (EP)	-0.051	-0.054	-0.027	-0.089	0.973

Notes: (1) The data on the main diagonal of the matrix are the square roots of the AVE. Above this diagonal the HTMT ratios are indicated. Values below it are correlations between constructs. (2) "****", "***" and "**" stand for statistical significance with $p < 0.01$, $p < 0.05$ and $p < 0.1$, respectively.

Source: Own elaboration.

4.2. Structural model assessment and results evaluation

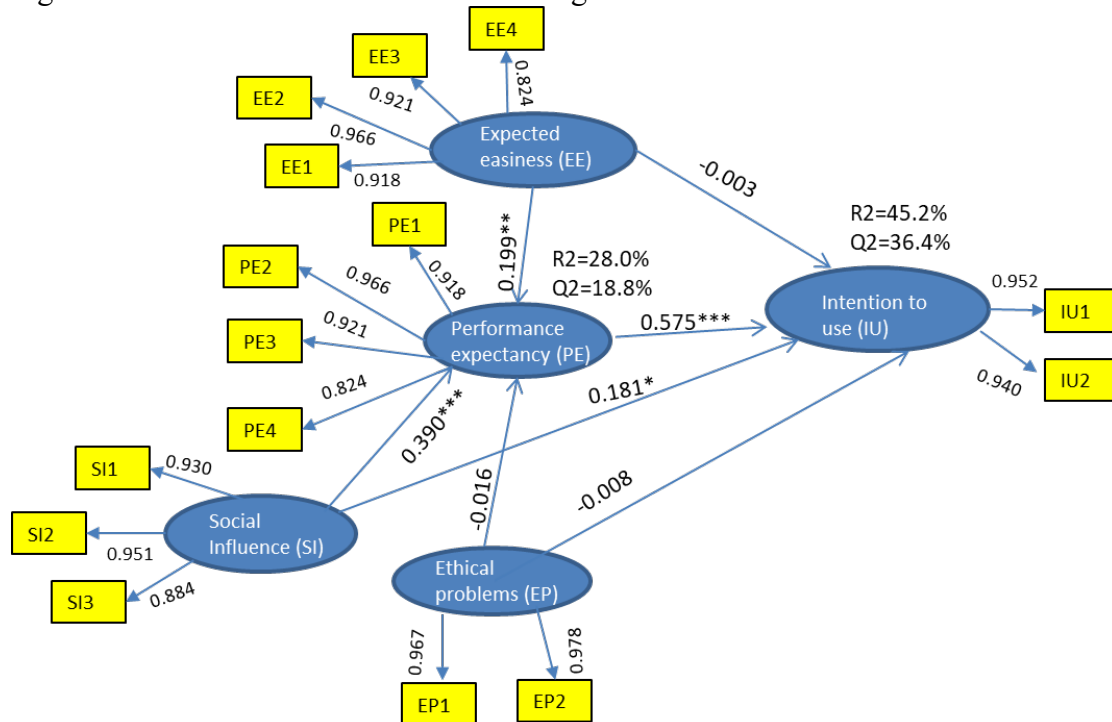
To assess the explanatory model depicted in Figure 2, we first perform a simple analysis of the correlations between IU and PE, EE, SI and EP and also between PE and EE, SI and EP. Table 5 suggests that the hypotheses about the sign in H1, H2a, H3a and H4a are, accomplished and in the case of PE, EE and SI these correlations are statistically significant at least, for a significance level < 0.1 . This last fact does not occur for EP. Likewise, the relations between PE and EE, SI and EP also present the postulated sign in H2b, H3b and H4b but it is only significant for EE ($p < 0.05$) and SI ($p < 0.01$) but not for EP.

The explanatory power of the model is measured by the determination coefficient R^2 . In the case of IU, $R^2 = 0.452$, i.e., a moderate level of predictive accuracy is reached since R^2 is practically 50% (Hair et al., 2019). Regarding PE, R^2 is between 25% and 50% (28.0 %), which corresponds to a level of predictive accuracy between weak and moderate (Hair et al., 2019). For both constructs, cross-validated redundancy, Q^2 , is clearly above 0%, that is to say, following Hair et al. (2019), our model is capable to make meaningful predictions on PE and IU. Notice that the sample, despite not being large (89 people), following the criteria exposed in Marcoulides and Sanders (2006), is adequate enough to perform the PLS-SEM

analysis due to good values in the internal consistency measures and discriminant validity of scales.

To assess the statistical significance and relevance of path coefficients, PLS-SEM bootstrapping with 5,000 resamples without replacement has been performed. We have built up confidence intervals with the Bias-Corrected method instead of percentile or studentized methods. In this regard, Streukens and Leroi-Werelds (2016) develop a comprehensive review on alternative methods to fit bootstrap confidence intervals in the PLS-SEM setting. Final results are shown in Figure 4.

Figure 4. PLS-SEM estimate of model in Figure 2



Note: “***”, “**” and “*” stand for statistical significance with $p < 0.01$, $p < 0.05$ and $p < 0.1$, respectively

Source: Own elaboration.

In Figure 4, it can be seen that we have found a great (weak) significant direct influence of PE (SI) on IU (these relations were stated in H1 and H3a, respectively). Although the fitted sign for the relation between EP and IU is negative, as H4a states, we have found that this relation is not significant. In the case of EE, neither its relation with IU is significant, nor is the sign as we postulated (H2a). So, hypotheses H1 and H3a can be accepted but H2a and H4a do not. Regarding PE, the influence of EE, SI and EP is positive in the two first cases and negative for EP, as we affirmed in H2b, H3b and H4b, respectively. Indeed, for EE (at a 5% significance level) and SI (at a 1% significance level) this relation is significant. Table 6 summarizes the direct and indirect effects of PE, EE, SI and EP on IU. In this respect, notice that although the direct effect of EE over IU has not the expected sign, it is not significant. On the other hand, the indirect effect of EE over IU through PE is positive and significant ($p < 0.1$). Likewise, SI has also an indirect positive effect on IU throughout PE ($p < 0.01$) greater than its own direct positive effect. Table 7 summarizes the results of the hypotheses tests of this section.

Table 6. Intensity of the influence of constructs on IU

Path	Coefficient	Student t
PE→IU	0.566	6.173***
EE→IU	-0.003	0.004

SI→IU	0.181	1.802*
EP→IU	-0.004	0.048
EE→PE→IU	0.114	1.821*
SI→PE→IU	0.220	3.239***
EP→PE→IU	-0.008	0.132

Note: “***”, “**” and “*” stand for statistical significance with $p < 0.01$, $p < 0.05$ and $p < 0.1$, respectively.

Source: Own elaboration.

Table 7. Results of the hypotheses tests in our article

Hypothesis	Correlation	PLS-SEM
H1	Accepted at a significance level of 1%	Accepted at a significance level of 1%
H2a	Accepted at a significance level of 1%	Positive direct effect of EE on IU is rejected but positive indirect effect through PE can be accepted at a significance level of 10%
H2b	Accepted at a significance level of 5%	Accepted at a significance level of 5%
H3a	Accepted at a significance level of 5%	Positive direct effect of SI on IU is accepted at a significance level of 10% but positive indirect effect through PE can be accepted at a significance level of 1%
H3b	Accepted at a significance level of 1%	Accepted at a significance level of 1%
H4a	Rejected	Rejected
H4b	Rejected	Rejected

Source: Own elaboration.

5. DISCUSION AND CONCLUSIONS

This paper evaluates an explanatory model of the intention to use life settlements by Spanish policyholders. There is no secondary life insurance market in Spain, so life settlements can be considered as a novel insurance product there. This fact motivates us to propose a model based on the Technology Acceptance Model by Davis (1989) and the Unified Theory of Acceptance and Use of Technology by Venkatesh et al. (2003) and Venkatesh et al. (2012), widely used to evaluate the use of new financial services and products, to detect factors that may explain the successful development of life settlements in the Spanish life insurance market. The proposed model has been estimated by using partial least squares structural equation modelling due to the small sample size and the non-normality of data.

The assessment of correlation values between the constructs leads to the acceptance of the postulated relations between Intention to Use, Performance Expectancy, Expected Easiness and Social Influence. However, Ethical Problems does not seem to be significant either to explain Intention to Use or Performance Expectancy.

Results of partial least squares structural equation modelling analysis show similar patterns. These results indicate that the constructs with the greatest direct explanatory influence on Intention to Use are Performance Expectancy and Social Influence (however, in this case with a weaker significance level). Our finding about the sign of the direct effect of Ethical Problems on Intention to Use is coherent with our hypothesis but its intensity is not enough to state that this effect is significant. Likewise, we have found that the direct effect of Expected Easiness on Intention to Use is negative but not statistically significant. On the other hand, we have detected a significant positive indirect effect of Expected Easiness and Social Influence over Intention to Use through Performance Expectancy.

The causal power of Performance Expectancy is consistent with other studies that found this construct to be determinant in the intention to use a new financial service (see Table 1). A

second factor with fair explanatory power is Social Influence. We have found significant effects of Social Influence on Intention to Use in a direct way but also indirectly throughout Performance Expectancy. As for life settlements, the influence of close people as family or a personal financial advisor must be greater than in the case of conventional financial services. The selling of a life insurance policy through life settlements is often made after a crucial event that negatively affects the insured's life expectancy, the final consequence being the waiving economic coverage of beloved people after the insured's death. Likewise, the architecture of this type of agreement and their consequences on personal taxation are complex enough to justify the need for professional advice.

Regarding Expected Easiness, despite the fact that most of the literature suggests that it influences the acceptance of new financial services, there is a considerable deal of literature that does not find this relationship to be significant (see Table 1). In our model, we have found an indirect effect of Expected Easiness on Intention to Use through Performance Expectancy that has a weak statistical significance ($p < 0.1$).

At first glance, it may appear that Ethical Problems could influence negatively the acceptance of the life settlements on the policyholder side. However, we have not found evidence of its relevance to explain the intention to use life settlements.

We feel that our results present practical soundness:

- For the successful development of life settlements in a market where these transactions do not exist, it is necessary that these agreements are perceived as useful by policyholders. This usefulness implies considering life insurance not only as a means of protection for the people loved by the insured in the event of their death but also as a protection against a significant and unforeseen loss of his/her health. A well-established secondary life insurance market provides life insurance with an extra utility: in the case of a significant unexpected increment in mortality probabilities of the insured, his/her life insurance policy turns into an interesting protection tool against this situation
- Expected Easiness does not affect Intention to Use directly but through its influence on Performance Expectancy. Therefore, it is a key dimension in the development of a secondary life insurance market. Figure 1 shows that the procedure for selling a life insurance policy in the secondary market is complex. Thus, it will be relevant to provide policyholders interested in agreeing on this type of transaction with clear and transparent information on how the contracts are priced. Likewise, the processes in Figure 1 must be efficient and agile enough to allow concerned policyholders not to perceive this complexity as a barrier to life settlements. For these purposes, taking into account the emerging Insurtechs to develop all the processes involved in life settlements could be a must.
- On the other hand, Social Influence has been found to be an important factor for the Intention to Use of life settlements. The development of such products needs a positive influence from those close to the policyholder since this type of agreements are often made in a critical emotional situation (e.g., after having been informed of a serious illness). Also, the intervention of a financial advisor with well-founded knowledge on issues such as life settlements functioning or taxation seems interesting.

The above findings have important implications for the industry in the development of a secondary life insurance market. It should focus on the most relevant factors in order to improve policyholders' perception of the usefulness of life settlements. Further research is required as well to obtain a deeper understanding of each specific variable.

We acknowledge the limitations of our research. While the opinions of the interviewees are highly qualified, the sample is small and focused on expert opinions. In the questionnaire, we did not inquire about the relevance of life insurances in personal portfolios and so, this potential bias has not been controlled. Another possible limitation is that this research was circumscribed to Spain. Thus, future research should be conducted in other countries where life settlements do not exist or are residual. Finally, we are aware that similar research must also be carried out to explain the determinants of the demand for life settlements. To build strong financial markets there must be, of course, issuers of assets (in this case, policyholders), but the demand for these assets must also be big enough.

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APPENDIX

Questionnaire on a possible implementation of life settlements in Spain

Life settlements are widely established in the USA market but they are not present in Spain.

In that market, through life settlements, the policyholder of a life insurance policy sells it to an investor (in a secondary life insurance market) instead of obtaining the surrender value from the insurer. This transaction could be advantageous for the policyholder if the insured has an impaired health status that reduces his/her life expectancy. Indeed, the investor prices the policy with mortality probabilities adjusted to the insured's real situation, which are below the standard, while the insurer does so with average probabilities of the whole population. Thus, life settlements may be an interesting option to obtain additional resources that help improve the quality of life of people who contracted a life insurance policy, no longer need it (for example, their children are already financially independent) and require special care because, as has been said, have a reduced life expectancy compared to the standard for their age and/or sex. However, the process of this kind of agreements is more complex than simply obtaining the surrender value of the policy and this fact may make it difficult for the policyholder to sell his/her policy in this way. Likewise, in these transactions, ethical and moral problems could be relevant because, for example:

- Insureds lose a lot of privacy since a large amount of medical information must be provided to price the policy in the secondary market.
- The policyholder may be under a high degree of emotional stress that prevents him/her from making an adequate decision.
- There exists information asymmetry because the insured is the only one who knows his/her real health status and the investor just has the medical reports. Additionally, the insured may feel incentivized to act against his/her own health in order to increase the price of the life insurance policy.
- The life insurance policy loses its original objective, which was to financially protect the beneficiaries upon the insured's death, and becomes a conventional asset to be negotiated like shares or bonds.
- Investing in life settlements can be interpreted as a macabre game in which the investor bets on the date of the insured's death and benefits from an early death.

We are conducting a study with the collaboration of some Spanish Universities into the possible factors that may influence the acceptance of life settlements by policyholders in Spain.

To do so, your answers will be of great help and they will be processed completely anonymously. Please give your opinion on the following statements (0 means complete disagreement and 10 complete agreement).

1. I may be interested in selling my life insurance through a life settlement transaction if the conditions to carry it out are met.
2. I predict that I would sell my life insurance policy through a life settlement if the conditions to carry it out are met.
3. The existence of a secondary life insurance market different from surrendering the policy will be useful for my financial decisions.
4. The possibility of selling my life insurance policy in a secondary life insurance market at a price greater than its surrender value will increase the performance of my financial decisions.
5. The existence of life settlements will help me achieve my goals more quickly.
6. The possibility of selling the life insurance policy through a life settlement will allow improvement my life standards.
7. Understanding how life settlement transactions work will be easy for me.
8. Selling a life insurance policy through a life settlement will be clear for me.
9. It will be easy for me to understand how secondary life insurance markets work.
10. It will be easy for me to become an expert on secondary life insurance markets.
11. People who are important to me will feel that, if necessary, I must sell my life insurance through a life settlement.
12. People who influence me will think that I should sell my life insurance through a life settlement instead of selling other assets that I have in my portfolio.
13. People whose opinions I value will approve of me agreeing on a life settlement.
14. Selling a life insurance through a life settlement is unethical.
15. The acquisition of a life policy by an investor is unethical.

Additional questions:

16. I have/will have enough income to contract a life insurance policy and, if necessary, I would sell it through a life settlement.
17. I have enough knowledge to sell my life insurance policy through a life settlement.
18. Life settlement transactions are/will be compatible with other financial savings transactions that I carry out/will carry out.
19. If I had doubts about selling a life insurance policy through a life settlement, I could get professional advice.
20. Selling a life insurance policy through a life settlement is risky.
21. There is too much uncertainty associated with selling life insurance policies through life settlements.
22. Life settlements are riskier than obtaining the surrender value of the life insurance policy.
23. Selling my life insurance policy through a life settlement would make me feel at unease.
24. Due to my knowledge, I am able to deal with financial and insurance topics.
25. I have a good knowledge of the financial and actuarial concepts life settlements are based on.

Finally, we would like you to provide us with some personal information. This information will also be treated anonymously and confidentially.

Gender:

- Man
- Woman
- Prefer not to disclose

Age:

Your net/liquid family income is:

- Low
- Middle-Low
- Middle
- Middle-Upper
- Upper
- Prefer not to disclose

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