

CHAPTER 1

INTRODUCTION

1.1 Research Background

Life insurance as part of financial industry has to introduce a product in order to survive in their business. To introduce a product, company should price the product properly. There are guidelines, regulations and several best practices to be adopted when company exercises the product pricing process. However, essential question: Would you sell this product to your mom or dad? is frequently omitted or considered. Parallel to this question is the fact that Financial Services is the least trusted across industries according to global survey by Edelman Trust Barometer from 2012-2019. Guideline, regulation and best pricing practices often centered around company interest and is usually based on financial consideration. The question challenges the life insurance companies to broaden their pricing strategy to consider other factors besides financial. Taking a further thinking, the question also leads companies to consider a more sustainable approach towards their pricing strategy through fair pricing. Company should consider environment, social and governance/ethical (ESG) or Triple Bottom Line (TBL) concerns in their pricing strategy. Reddy (2015) argues that given actuaries' skills and experience in the modelling of the outcomes of entities' activities in the economic domain and the eclectic nature of actuarial discipline, the actuarial profession has a unique position in society relative to other professions to address the challenges of environmental, social and economic sustainability.

In order to increase protection to customer, several countries have produced several regulations related to pricing. In Australia there is Competition and Consumer Act 2010. In the UK there is Unfair Trading Regulations 2008. Finally, in US there is Retail Pricing Laws and Regulations that regulates comparative pricing, recommended retail pricing, predatory

pricing, price fixing, etc. All the above regulations lack of detail practical guidelines related to fair pricing. Having discussed about price legislation, this research does not mean to be a research in area of legislation (in the sense of economic or pricing theory). Instead, this research is about sustainability and fair pricing and it suggests that one of the answers to the above question is to develop a sustainable product through fair pricing which at the end will also protect customer.

Sustainable product will exhibit fair pricing which considers fairness to all stakeholders. It also considers other aspects besides financial. Hallstedt (2017) suggests to address other aspects as early as in the product development stage. Xia (2004) suggests a reference point in order to increase perceived fairness from customer.

Regulations and literatures that concerns about the sustainability of the life insurance business are mostly in terms of the company solvability such as Solvency II (SII) and Risk Based Capital (RBC). Whereas SII or RBC to certain extent could address the ESG, this monitoring tools arguably comes after the product is being priced or included in the pricing for financial consideration only. Why don't we include the ESG consideration as early as possible starting when the company starts pricing the product? This question to certain extent is in line with Financial Conduct Authority (FCA) UK to offer incentives for ESG product development (FCA Discussion Paper, 2018). This research will try to fill the gap and answer previous questions by introducing a method of pricing that would consider the other stakeholders in the life insurance business. Whereas there are many stakeholders, this research limits the stakeholders into company shareholder, regulators, distribution channels and customers. If company could be fair to all the fours stakeholders then arguably it has address ESG or TBL concerns. Proper governance and fair treatment to all the stakeholders would result in much less exploitation of resources or increase the use of more green

investment and activities (Gerald, 2018). People will be happier to deal with more ethical companies.

Addressing sustainability is even more important because there are many researches and surveys that find that Millennial generation concern about this. The Millennial Impact Report 2017 shows that 87% of Americans will buy a product with company that cares about CSR, an activity that is closely related to sustainability. Nielsen 2015 survey report reveals that 73% of Millennial are willing to spend more on a product if it comes from a sustainable brand. Finally, the adoption of United Nation resolution about 17 Sustainable Development Goals by 193 countries show that sustainability is the way to achieve a better future.

The importance of developing a sustainable financial product has long been recognized by the industry despite its slow development (Weber, 2014; Hira, 2012). This research will propose a fair pricing as a framework to develop sustainable product. Many researchers have found a close relationship between fairness and sustainability. If you price your product fairly to all stakeholders, your product will be more likely to be sustainable. Fairness is measured using several fairness grand theory and is linked to the development of a reference point. In this study the reference point suggested is to use a risk measurement called Conditional Tail Expectation (CTE).

The fair pricing concept will be illustrated using Unit Linked insurance product. This product is the most saleable product in Indonesia for the last 5 years and is still projected to be the dominant product in the next 5 years. Unlike pure insurance products, Unit Linked combines both insurance and investment in a single integrated product. The investment risk is borne by the policyholder. The integration of insurance and investment (including the risk) makes it difficult to justify the fairness of the charges applied to the premium. This research

aims to address the fairness of the pricing of Unit Linked given that policyholder needs to borne the investment risk.

Last but not least, linking to the digital era now the framework to generate fair pricing for Unit Linked product will help company and policy maker to launch this product on line rather than requiring it through advice selling (Reisman, 2019). The reason is that the framework has been developed to address most of the fairness and sustainability concern related to all stakeholders especially the customer. Once the product could be sold online, the product could serve to increase financial inclusion. Finally, financial inclusion will speed up the achievement of Sustainable Development Goals no left behind (Ma'ruf & Febriyana 2019; Klapper et al. 2016).

1.2 Problem Statement

Literature on sustainability life insurance product is very rare. Most literatures on sustainable products are on manufacturing industry. The researches of sustainable financial products are mostly for banks or asset management (Perez & Rondriguez del Bosque, 2015; Manolas & Dimoudi, 2017; Kumar & Prakash, 2018; Sabbaghi, 2011; Chang, Nelson & Doug Witte, 2012). In insurance industry, most of the researches on sustainable products are in general insurance area (Daron & Stainforth, 2014; Odening & Shen, 2014; Xu, 2014; Bélanger, 2016).

Sustainable life insurance product researches usually discuss how companies take into consideration green practices, CSR, good governance and risk management. Van den Berghe & Louche (2005) suggest that corporate governance (transparency) and CSR can become valuable properties to insurers. Nogueira, F. & Nogueira, R. (2017) developed an integrative model to assess sustainability of the insurance industry. Their research contributes to strategic ESG risk management and product development. Hsu (2017) finds that CSR initiatives

enhance customer satisfaction, corporate reputation, and brand equity, encourages managers of life insurance companies to continue investing in CSR initiatives. Arun, et. al. (2012) find a convincing need to develop microinsurance for the poor through financial education.

There are not many studies that discuss sustainable products by considering pricing fairness through the lens of stakeholders other than the company. Krasheninnikova, E., García, J., Maestre, R., & Fernández, F. (2019) describe the use of Reinforcement Language (type of machine learning) for the problem of renewal price optimization for insurance. The optimization is viewed from company point of view not customer. Other literatures address pricing fairness from risk classification point of view (Schmeiser, H., Störmer, T., & Wagner, J. 2014) and for non-Unit Linked products (Francis, J. C., Harel, A., & Harpaz, G. 2010).

From the discussion above, researchers have examined the importance of sustainability products. However most of the studies about sustainable life insurance products lack of fair pricing consideration. Practical framework for fair pricing that is viewed through the lens of customers has seldom been researched before.

1.3 Research Objectives

The purpose of this research is to develop a fair pricing framework in order to create a sustainable Unit Linked product. The objectives include the following:

- To analyse assumptions used in current practice to price Unit Linked product.
- To analyze the results of current practice to price Unit Linked product.
- To identify fairness problems in current pricing practice.
- To examine suitability of risk measure CTE as a robust reference point to address fairness between policyholder and company.
- To analyze the results of using CTE in the new pricing framework.

1.4 Research Questions

In order to achieve the research objectives, this study poses the following central research question: “**How to develop a fair pricing framework in order to design a sustainable financial product**”. Fair will be defined as equity in risk between company and policyholder. The reference point to assess fairness is proposed to use risk measurement CTE. With the central research question in mind, a contextualization of three research questions will be described below. The order of the research questions show a logical step in order to develop a risk measurement as a fairness criterion in the new framework .

- What are the assumptions used in current practice to price Unit Linked product?
- What are the results of current practice to price Unit Linked product?
- What are the fairness problems in current pricing practice?
- What are the reasons that make risk measure CTE is suitable as a robust reference point to address fairness between policyholder and company?
- What are the results of using CTE in the new pricing framework?

1.5 Significance of the Study

This study is significant in three ways:

Theory: This study has compiled a comprehensive grand theory underpinning the sustainability for financial products and fair pricing from the recent and most significant literatures. Sustainability theory starts from Shareholder Wealth Maximation theory (Friedman, 1962) as the lowest level of sustainability to Enlightened Stakeholder theory (Jensen, 2001). Fair pricing as a key element of sustainability will be discussed through Equity theory and the two major famous concepts, i.e. Procedural fairness (Chong, 2015;

Ferguson, et al., 2014; Zhang, 2015) and Distribution fairness (Diller, 2008; Krawczyk, 2011; Kamas, L., and Preston, A. 2012; Lucas, 2009). By reviewing and summarizing the theoretical arguments between sustainability and fair pricing, including identifying potential theoretical and research gaps, this study aims to develop theoretical framework to price Unit Linked product fairly and therefore will make the product sustainable. This study will overcome drawbacks in current pricing method literature which lacks of stakeholder point of view and therefore fairness.

Practice: the high sample proportion of the primary data that has been collected and processed for the empirical analysis in this study will not only provide detailed information on product specification and ways companies price the product, but also provide evidences that companies frequently price the product through profit testing method from the company point of view. Conclusion drawn from the sample data will provide valuable information for society, actuary, life insurance/financial industries and regulators. Further, the research can help to foster sustainability concerns about life insurance/financial products and anticipate future trend expectations that companies should concern about ESG. This study will also provide insight to actuary or other professions to act ethically and professionally when price or develop a product by enlightening the current profit testing method. The framework developed here will eliminate information asymmetry in the Unit Linked price fairness assessment. Since the framework will generate a fair price for Unit Linked, this product could then be sold through internet. This will foster the growth of this product which could help addressing financial needs and planning for society.

Regulators. This framework developed in this study if it is implemented as a government regulation will advance corporate transparency on sustainability. Currently the fair pricing framework on Unit Linked pricing is very rare if any. In line with the Global Reporting Initiative, policy makers must promote of non-financial (including ESG) information in their

annual accounts. There is an increasing demand for sustainability information and initiatives such as Principle of Sustainable Insurance report. This framework could fulfill such demands and requirements. To help with the implementation, the CTE risk measurement figures should be made transparent as early as in the product development submitted to the regulator as well as in the selling process.

1.6 The Scope of the Study

The scope of the study is life insurance product in Indonesia. The unit analysis is the Unit Linked product developed by company. To illustrate the protection and investment nature of this product, analysis is focused on Regular Premium Payment and not on Single Premium Payment which is usually meant for investment. Denominations is restricted to Rupiah currency as this is the most popular policy. The product samples are from the year 2015 and 2019. This year is selected to allow analysis of fairly recent trends. Unit Linked is the most saleable product for the past five years in Indonesia. The new business production for Unit Linked consists of 70% of the total new business production according to Indonesian Life Insurance Association Q4 2018 report.

Fair pricing for Unit Linked is quite challenging to define since the investment risk is passed to the customer. Customer bears the loss or gain in the investment risk. On the other hand, company's revenue or income is quite certain. Other stakeholders outside the company including customers are quite difficult to measure the fairness of the pricing because the mixed between the cost for the insurance protection and the return generated from the investment. This study will propose a framework that will distribute fairly the expected risk generated by the stochastic nature of the investment risk including the cost of the insurance protection. Although this study focuses on Regular Premium Unit Linked product, the fair pricing framework is also applicable to other insurance products.

1.7 Organization of the Dissertation

This dissertation is organized into five chapters.

Chapter one provides a research background, the problem statement, the purpose of the study, the research objectives, the research questions, and the significance of the study and the scope of the study.

Chapter two presents a rigorous and comprehensive literature review on the grand theory of sustainability and fair pricing theory. This review not only summarizes the major issues concerning sustainability and fairness, but it also summarizes existing research findings and identifies potential research gaps.

Chapter three presents a comprehensive methodology and research design used to design the framework. The framework will be based on the systematic review of theoretical arguments and underpinnings covered in the literature review. The research design is to build a financial model. The key assumptions and notations for the financial model are defined and they are going to be used in the next chapter. Finally, this chapter will be concluded with an analysis using a numerical illustration to add understanding the financial model and the framework.

Chapter four presents the empirical analysis for the 20 sample products. It will use the financial model and follow the framework identified in chapter three. This chapter will address the research questions posed in Chapter One. The first part will discuss the key assumptions used in the 20 samples. After that the sample products are tested using the stochastic profit testing model from Chapter Three. Issues and Improvements from current practices are identified and discussed. Finally, the results of the new profit testing under the new framework are presented and discussed.

The final chapter summarizes and analysis the results and findings from Chapter Four. This chapter will make conclusions to answer the research questions with the findings. The research implications and limitations of this dissertation are also discussed to provide guidance for further research in this field.

