Social Trust and Life Insurance

Social Trust and Life Insurance: The Impact of Genetic Test Results in the Republic of Ireland

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

> "Within a few short decades, society rearranges itself, its world view, its basic values, its social and political structure, its arts, its key institutions… There is a new world."
> —Peter F. Drucker

The life insurance industry is regularly confronted with changes in its surrounding environment that may influence the business in a positive or a negative manner, depending upon the nature of such changes and their effect upon society. One such change that impinges upon both life insurance business and society is genetic testing. Developments in genetic knowledge have enabled the medical profession to test individuals for their genetic predisposition to inheritable disease. The results of genetic tests can reduce uncertainty surrounding certain future events, such as a person's life expectancy or possibility of developing a particular disease. The advantages of this reduction in uncertainty for society include several desirable medical possibilities.[1] However, among the myriad of uses of genetic testing, its use by life insurance companies has been received rather negatively by society, with strong opposition to the use of genetic test results in the underwriting of life insurance policies (Hall Mark *et al.*, 2005; Voss, 2000:8; RADAR, 1999).[2] Given that the result of a genetic

[1] There exists the possibility to pre-treat disease in order to prevent future illness and the potential to individually tailor drugs to ensure direct treatment of disease with the foresight of an individual's negative reactions to specific medications (Robertson, *et al*. 2002)

[2] The 1999 BSA (British Sociological Association) indicated that 75 per cent of the British public thought that insurance companies shouldn't be allowed to use genetic tests when determining premium rates (Voss, 2000:8).
A study completed in 2005, illustrates that 40 per cent of the study's population of 86,859 participants agreed with the statement: "Genetic testing is not a good idea

test constitutes the evaluation of a risk, this information is deemed usable by life insurance companies in determining the risk status of applicants. Reasons for the controversy surrounding this use of genetic test results are based upon perceptions of discrimination and fairness, whereby in today's society, no person's genetic inheritance is considered a priori better than any other person's, with the corollary that discrimination on genetic grounds is deprecated (MacDonald, 1999:83). However, the business of life insurance is based upon the ability of an insurer to discriminate between risks and to charge clients a premium that is representative of the risk which they bring forth to the life insurance fund. Indeed, insurers have been using family history information for decades in order to determine the mortality and morbidity of an individual. However, the fresh moral and ethical concerns introduced by the more accurate and reliable information provided by genetic tests, has lead to widespread debate surrounding what can be considered as acceptable and unacceptable forms of discrimination and what constitutes fairness.

Society's perception of insurers' use of genetic test results has received little attention in the media and political circles in the Republic of Ireland. During the conduct of the primary research of the present study, insurers were allowed to use the results of two genetic tests that indicate predisposition to Huntington's disease, in addition to other underwriting factors. Following some discussion between the insurance industry and the Government, new legislation imposed by the Government in June 2005, dictates that life insurance companies are no longer permitted to access applicants' genetic test results.[3] Although, this legislation is designed to protect Irish society from perceived risks relating to insurers' use of genetic test results, the attitudes of the Irish public regarding the risks associated with this situation were not assessed. Given that a good

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because you might have trouble getting or keeping your insurance"; Hall, Mark A. *et al*. (2005)
Research by RADAR (the disability network; registered British charity) in 1999 demonstrated strong public opposition to insurers gaining access to genetic tests (90 per cent of British RADAR members surveyed

[3] The study was conducted over a three year period (2003-2006), while the primary research for the study was completed during approximately one of those three years. Hence, the present study must be considered as producing a snapshot of individuals' risk acceptance attitudes during that particular period. Changes in the policies governing life insurers' use of genetic test results have since been enforced, in particular the Disability Act, 2005, and this may affect applicability of the study. However, this picture can be used to compare the impact of the changes that have been incorporated into legislation since the research was carried out.

risk management decision "emerges from a decision-making process that elicits the views of those affected by the decision, to ensure that differing technical assessments, public values, knowledge and perceptions are considered" (The Presidential/Congressional Commission on Risk Assessment and Risk Management, 1997), without public consultation, the entities managing the risks related to the use of genetic test results in life insurance underwriting are incapable of making any appropriate decisions regarding the control of these risks. This study shall question if society perceives any risks from insurers using genetic test results, what these risks are, and if individuals accept insurers' use of these tests.

Insurers are generally concerned about the practical and financial consequences of an increasing number of people knowing from genetic tests that they have a genetic mutation which increases their susceptibility to illness that may be the cause of premature death. Hence, this study is primarily concerned with insurance policies specifically designed to cover the risk of premature death. There are a variety of other life insurance policies available on the market that may also be affected by genetic testing, such as critical illness, income protection and medical expenses insurance policies. It is important at this stage to underline a distinction between several of these policies. The medical expenses insurance market in Ireland is governed differently than other types of health insurance. There are only three suppliers of medical expenses insurance in the Republic of Ireland at present. These include VHI (Voluntary Health Insurance), BUPA Ireland (British United Provident Association) and Vivas Health. Genetic testing should not present the same risks to society from medical expenses insurers using genetic test results due to the underwriting system of this form of insurance. Medical details are requested by medical expenses insurers, however, individuals' health status details only restrict them from obtaining full cover for a certain period of time (known as the waiting period). The waiting period depends upon the age of an applicant upon enrolment. Given the less stringent approach to paying claims based upon health status, medical expenses insurers cannot be considered to present the same or equivalent risks as life insurers from their use of genetic test results.

Life insurance companies also provide types of health insurance, such as permanent health insurance, critical illness insurance and long-term care insurance. Each of these products tends to have stricter claiming conditions than medical expenses insurance. The underwriting criteria for permanent health insurance and long-term care insurance are more

stringent than those for critical illness insurance, where it is possible to obtain a large level of cover without provision of a medical. These contracts expose society to more risks than medical expenses insurance, indeed, the level of risk could be comparable to that deemed to derive from death insurance. This is due to the nature of these policies whereby a failure in the health of an individual, often to a certain pre-described degree, necessitates insurers to pay out. Therefore, for the majority of these types of health insurance contract, insurers require a great detail of medical history from applicants and, in some cases, regular medical examinations. This information may alter the premium or level of cover provided to an individual. In this manner, the risks for society from insurers gaining access to genetic test results are similar to death insurance contracts and the risks from insurers being denied access to this information is also comparable. However, it is difficult to investigate these risks as there can be a substantial difference across insurers with regard to the requirements and criteria for payment of each type of health insurance contract. Given the difficulties in the convergence of all types of health insurance into one bracket, it is considered beyond the scope of the present study to explore perceptions of the risks related to insurers using genetic test results to underwrite such policies. The present study is, therefore, limited to the investigation of the risks and benefits perceived by society as relating to life insurers using genetic test results to underwrite policies associated with premature death.

Research in the area of risk perceptions and risk acceptance has been particularly intense when it comes to explaining perceptions of nuclear risks and the acceptance of hazardous waste facilities. In addition, trust in the entities managing such risks has been examined and the affect that trust has upon perceived risk analysed. Viklund (2003) suggests that the special importance of these particular risks when studying the relationship between trust and risk perception, is related to people's low level of knowledge about such risks. It is likely that Irish society has incomplete knowledge of the risks related to insurers using genetic test results, as this matter has received relatively little attention by the Irish media. Unlike nuclear waste and genetically modified foods, there has been little significant research on society's perceived risks and benefits of the use of genetic test results by the life insurance industry or trust in the entity(s) governing such usage. In addition, few studies examining the relationship between trust and risk perceptions have been conducted within Europe, instead, the majority of research has been performed in the United States (Viklund, 2003:727). Therefore, as well as gaining an understanding of

the risks perceived by Irish society of insurers' use of genetic test results and the acceptance of such usage, this study intends to bridge the research gap that exists on the trust-risk relationship and examine the nature of the association between knowledge, trust, risk perception and benefit perception and their influence upon risk acceptance. To fully understand acceptance of the risks related to insurers using genetic test results, this study shall explore the nature of this relationship and identify and examine the factors and conditions that may influence this affiliation and consequently risk acceptance.

1.2 Theoretical Context of the Study

The study is based on the theory that there exists a relationship between knowledge, social trust, risk perception, benefit perception and risk acceptance.[4] For the purpose of the study, knowledge is defined in terms of a lay person's knowledge which is considered less formal and more intuitive and qualitative than expert knowledge, which is seen as objective, analytic and rational (Slovic, 1999:675). This knowledge represents a different kind of expertise that is a function of both the cognitive and the motivational system and of the conditions of the social, political and cultural environment (Jungermann and Slovic, 1993:87; Otway, 1992:220). Social trust focuses on public trust in those responsible for risk management, including politicians, authorities, and corporations and refers to people's willingness to rely on experts and institutions in the management of risks and technologies (Viklund, 2003:729; Earle & Cvetkovich, 1995). Social trust is assumed to be socially constructed and dependent upon a number of factors that constitute and contribute to trust (Weber and Carter, 2002). These factors indicate reasons for trust or lack of trust in an individual or an organisation and include competence, reliability, credibility, integrity, care, fairness, and openness (Poortinga and Pidgeon, 2003). Social trust in two entities, the Irish Government and the insurance industry, who were both involved in the management of

[4] Land and Hallman, 2005; Siegrist *et al*., 2003:707; Viklund, 2003; Pisano and Woods, 2002; Sjoberg, 2002; Figueiredo and Drottz-Sjoberg, 2000:233-242; Wright, Pearman and Yardley, 2000:681-690; Siegrist, Cvetkovich, Roth, 2000:353-362; Siegrist and Cvetkovich, 2000; Slovic, 2000; Hunt, Frewer, and Shepherd, 1999:167-180; Grobe *et al.* 1999; Groothius and Miller, 1997:241-257; Jungermann *et al*., 1996; Biel and Dahlstrand, 1995:25-36; Earle and Cvetkovich, 1995; Freudenburg, 1993; Flynn *et al*, 1992:417-429; Flynn *et al*., 1992; Bord and O'Connor, 1992, and Pijawka and Mushkatel, 1991; Drottz-Sjoberg and Sjoberg, 1991:2007-2036 and Baird, 1986:425-435

insurers' use of genetic test results during the time which the study was conducted, are analysed. Risk perception and benefit perception are defined as perception of risks/benefits for 'family and I' and for 'society as a whole'. The term 'risk' implies a possible future negative and uncertain outcome of an event or situation caused by nature or human activities where insufficient knowledge was available to prevent such an outcome (Holzheu, 1993:241; Renn, 1992:57-58). The positive outcome of a situation or an event can be referred to as a gain, a profit or, in this case, as a benefit. Risk acceptance is defined as agreement or satisfaction with a risk situation and the current strategies designed to manage such circumstances (Sjoberg, 1999:130).

This research, to a certain extent, is replicating segments of previous studies, albeit with a different approach. The three studies that are of particular relevance to this research are those of Siegrist and Cvetkovich (2000), Siegrist (2000) and Poortinga & Pidgeon (2003). According to Siegrist and Cvetkovich (2000), where incomplete knowledge of a hazardous situation exists, people make decisions regarding their acceptance of risk based upon their trust of those managing the risk situation. Within this risk acceptance pattern, trust does not have a direct influence upon risk acceptance but results in a positive evaluation of the benefits and a negative evaluation of the risks which leads to the acceptance or tolerance of risk. Therefore, according to Siegrist (2000), trust has an indirect affect upon risk acceptance. Rather than examining a general evaluation of trust, as in Siegrist (2000), the present study shall adopt a multi-dimensional definition of trust as defined by Poortinga and Pidgeon (2003). This influential pattern shall be explored in relation to the risk acceptance of life insurers using genetic test results in their underwriting procedures. In addition, other factors and conditions that influence risk acceptance attitudes associated with this matter shall be examined.

This study adopts the central features of critical realism in that an attempt is made to preserve a 'scientific' attitude toward social analysis, as well as acknowledge the importance of people's meanings in the exploration of the relationship between trust and risk (Layder, 1993:16). This particular approach conveys the 'textured' or interwoven nature of the different dimensions of social reality as depicted by a realist philosophy, taking into account the perspectives of the people involved. To fully understand the complex social reality that influences public views, the study teases out the different, although interconnected and interdependent, dimensions that

shape this reality. Layder (1993) outlines several dimensions of social reality that intertwine with each other to produce a multifaceted or stratified model of society. The dimensions include 'context', 'setting', situated activity, self, plus the overriding dimension of history. Layder (1993) also refers to the need to consider power; a dimension of social reality that pervades all other levels. For the purposes of this study, an attempt is made to disentangle four of the elements that make up social reality and examine them and their affect on the research questions separately. It is important to note at this stage that history is not examined as it is considered beyond the scope of the study. In addition, given the nature and objectives of this particular study, there is a stronger emphasis placed upon analysis of the self-dimension than the remaining three dimensions. This is not to say that these dimensions play a lesser role upon the social reality surrounding insurers use of genetic test results, it is merely that the self-dimension preoccupies a predominant position in this study. This inadequate examination of each of the dimensions somewhat contributes to a lack of full disclosure of the social reality surrounding the risk acceptance of insurers using genetic test results. However, further analysis of these dimensions and their affect upon trust, risk perceptions and risk acceptance may prove a valuable contribution to the findings for future research. By applying Layder's (1993) guide to examining social reality, all the dimensions that impact on acceptance of the perceived risks related to insurers' use of genetic test results are considered, thereby increasing our understanding of the factors that influence the risk acceptance pattern to be examined.

1.3 Objectives

The present study intends to explore the role that incomplete knowledge, social trust, risk perception and benefit perceptions have on society's acceptance of the perceived risks related to insurers using genetic test results. In doing so, the study shall examine society's knowledge of insurers' use of genetic test results in their underwriting processes and individuals' perceptions of the risks and benefits related to such usage, as each of these factors have been attributed to influencing individuals' risk acceptance attitudes. Social trust is also considered a rather eminent factor in affecting risk acceptance, hence, this item shall also be analysed with regard to the effect it may have upon society's acceptance of the risks related to this situation.

In addition, the factors and conditions that influence society's knowledge, social trust, risk perceptions, benefit perceptions and acceptance of the risks perceived from insurers using genetic test results are explored. The intention of doing so is to understand the reasoning behind individuals' trust and risk related evaluations. This ensures that an explanation regarding the acceptance of risks perceived by individuals in relation to insurers using the results of genetic tests is presented as close to its entirety as possible.

To achieve these objectives, the following sub-objectives are identified:

- Test a model adapted from Siegrist (2000) suggesting an influential link between incomplete knowledge, social trust, risk perception, benefit perception and risk acceptance in relation to the use of genetic test results by the life insurance industry in the Republic of Ireland, in order to understand if these factors influence society's risk acceptance.
- Examine whether or not trust is an important determinant in judgements of risks and benefits in the absence of knowledge.
- Verify if social trust in the insurance industry and the Government influences individuals' perceptions of the associated risks and benefits.
- Investigate any influence that risk and benefit perceptions may have on public acceptance of the use of genetic test results by life insurance companies.
- Explore differences in self-assessed knowledge, assumptions of social trust, risk perceptions, benefit perceptions and risk acceptance of individuals based on gender, age, economic status and life insurance ownership to understand if and how these factors may affect knowledge reports and trust evaluations, risk perception, benefit perception and risk acceptance judgements.
- Further develop an explanation of acceptance of the risks related to insurers using genetic test results by further investigating the factors and conditions that underlie self-reports of incomplete knowledge, trust in the Government and the insurance industry, perceived risks and perceived benefits related to insurers using genetic test results and, indeed, risk acceptance itself.

1.4 Methodology

To achieve the objectives of the present study, the use of genetic test results by life insurers and to examine the consequences of such usage and the policies that govern this practice are explored. In doing so, a review of previous literature on this area is considered in order to provide a fuller picture and a means of assessing the situation in the Republic of Ireland. Literature relating to the formation of a risk society is also investigated to gain an understanding of the risks perceived as a result of insurers using genetic test results. To provide a framework in which to study the factors that affect risks acceptance, previous research on the influence that knowledge, social trust, risk and benefit perceptions have upon risk acceptance is examined. In addition, several socio-demographic factors, which are considered in the literature to affect risk acceptance, are explored and analysed.

The study is both extensive and intensive by design and embraces both quantitative and qualitative elements, reflecting a critical realist approach to the research. Participants from two counties in the Republic of Ireland completed a questionnaire that evaluated their self-assessed knowledge, social trust, risk perception, benefit perception and risk acceptance of the use of genetic test results by life insurance companies. The survey measured sets of items related to knowledge, social trust, risk perception and benefit perception to obtain a fuller analysis of the relationship between these factors (see Appendix A.1). Statistical analysis of the survey using SPSS was conducted to reveal whether or not an influential relationship between incomplete knowledge, trust, risk perception, benefit perception and risk acceptance exists based upon the replies of respondents.[5] Survey analysis also indicated whether people differed in their responses across trust in the Irish Government and the insurance industry. In addition, the effect that socio-demographic factors and ownership of life insurance have upon knowledge, trust, risk perception, benefit perception and risk acceptance was explored.

This analysis was followed by semi-structured interviews based on a strategic sample, whereby four types of case were illustrated and explored based upon the findings of the survey analysis – extreme case, extremely

[5] Statistical Package for the Social Sciences: A software system for data management and analysis. SPSS may be used for many univariate and multivariate statistical analyses and has facilities for sorting and merging files and manipulating data. SPSS can deal automatically with complex files.

varied case, critical case and representative case (Danermark, 2002:170). The use of a comparative case study analysis allowed the attainment of information surrounding the significance of various factors and conditions that serve to influence the risk acceptance pattern deduced by the questionnaire. Given the relatively small number of cases comprising of few representatives, it was decided to conduct the analysis manually without the assistance of any specialised computer package. Interview analysis is contained in the Appendices for review (see Appendix D.1).

1.5 Significance of the Research

The research provides an analysis of the influential nature of the relationship between incomplete knowledge, trust, risk perception, benefit perception and risk acceptance in the Republic of Ireland and the factors and conditions that serve to influence this relationship. Unlike previous studies that examine this relationship, trust is measured through the use of previously defined dimensions of trust (Poortinga and Pidgeon, 2003), thereby, providing a fuller analysis of this pattern. In addition, given that most other studies conducted on this pattern of risk acceptance have been completed in the United States of America and, on different hazards, this study reveals valuable findings that might be considered for exploration in further studies.

The Government and the insurance industry have paid little attention to the perceptions of society regarding insurers' use of genetic test results. There has been no significant research on society's perceived risks and benefits of the use of genetic test results by the life insurance industry in the Republic of Ireland. This research underlines the importance of acknowledging that society feels affected by insurers using genetic test results and that these feelings should be accounted for in the decision-making process regarding the policies designed to mitigate the risks identified. This study should aid policy makers in their management of the risks posed by this commercial use of genetic testing.

The present study applies the risk theories of Beck (1992) and Giddens (1990; 1991 and 2000) to a partly new empirical field, making this study a somewhat different undertaking. The purpose of doing so is to understand if these theories are productive when it comes to understanding the perceived risks related to the use of genetic test results by the life insurance industry. By bringing such theoretical perspectives into a field where they have not been applied before, the theories could contribute to

new ways of understanding and thinking about the management of the use of genetic test results by the life insurance industry. In addition, the findings from the present study could further develop our comprehension of risk theory and risks in late modernity.

1.6 Plan of the Study

Chapter 1 of this study has provided an overview of the research. Chapter 2 explains genetic testing, insurers' use of genetic test results and the policies designed to mitigate the risks perceived from such usage. The nature of the relationship between Beck's (1992) and Giddens' (1990; 1991 and 1999) theories of the risks faced by modern society and the alleged risks posed by insurers using genetic test results is identified, and the bearing that this relationship has on society discussed. Chapter 3 provides an overview of previous research findings on trust and risk perception and the relationship between incomplete knowledge, trust, risk perception, benefit perception and risk acceptance. Chapter 4 outlines the methodology for carrying out the primary research and findings from the survey and case study are revealed in chapters 5 and 6. Chapter 7 draws conclusions from the literature review and the primary research regarding the factors and conditions that influence acceptance of the perceived risks related to insurers using genetic test results. Based upon the findings of this study, implications for the field of risk research and the insurance are explored and criticisms of the research explained. Finally, Chapter 8 assesses achievement of the objectives of the study and discusses recommendations for future research in this area.

1.7 Summary

This chapter has detailed the nature and objectives of the research being undertaken and has outlined how the study is organised. It was revealed that there has been little significant research on society's perceived risks and benefits of the use of genetic test results by the life insurance industry, acceptance of these risks or trust in the entity(s) governing such usage. It was considered that it would be advantageous for entities managing the risks related to this matter to identify and take into account the perceptions that society has of the risks associated with insurers using genetic test results.

An introduction was given to the context of the study and it was found that although researchers have previously examined the relationship between

trust, risk perception and risk acceptance, a critical realist approach to the study of this relationship has rarely been conducted. It was outlined how Layder's (1993) research map is used as a guide from which to explore the web of influence surrounding society's acceptance of the risks related to insurers using genetic test results and the generative mechanisms that underlie such acceptance. By following this approach, it should be possible to obtain a holistic view of the nature of this relationship and the factors and conditions that generate this risk acceptance pattern.

The methodology for the primary research was identified and discussed briefly. It was outlined how a survey and case study were used as research tools from which to explore the relationship between knowledge, trust, risk perception, benefit perception and risk acceptance and other factors that may influence this risk acceptance pattern. Finally, the value or significance to be derived from the completion of this study was presented. On theses foundations, the study can proceed with a detailed description of the research.

The following chapter shall explore the nature of genetic testing and its use by life insurance companies as a factor to be considered in their underwriting of applications. The reported consequences of insurers demanding genetic test results from individuals are identified and explored. In addition, the resemblance of the perceived consequences of insurers using genetic test results and the risks identified that contribute to a risk society is explained in the context of theories from Beck (1992) and Giddens (1990; 1991 and 2000). Finally, the policies that govern life insurers' use of genetic test results in the Republic of Ireland shall be examined.

CHAPTER TWO

LIFE INSURANCE AND GENETIC TESTING

2.1 Introduction

The previous chapter provided a brief overview of the background to the present study. The theoretical standpoint of the research was discussed and the objectives described. The purpose of this chapter is to explore insurers' use of genetic test results and the consequences that arise from such usage for insurers and society. To begin with, it is important to acknowledge the development of genetic test results as a source of hereditary information. The potential for rapid advances in our understanding of the genetic basis for health and disease has been heralded by the publication of the sequence and analysis of the human genome in February 2001. DNA (deoxyribonucleic acid) based tests are among the first commercial applications of the new genetic discoveries.[1] Genetic testing involves the examination of an individual's DNA in order to identify certain characteristics about that individual, such as gender or allergic reaction. In addition, genetic tests can be used to look for mutated genes and gene products that could signal an aberrant gene. Such tests can ascertain if a person is a carrier of a particular gene, which may determine whether the person is predisposed to a particular disease or is presymptomatic for a specific illness. From the onset, these new developments were publicly and politically acclaimed as a positive step toward a new era in pre and post medical healthcare. However, within a short space of time, genetic testing is increasingly perceived as a very

[1] DNA is an extremely long macromolecule that is the main component of chromosomes and is the material that transfers genetic characteristics in all life forms, constructed of two nucleotide strands coiled around each other in a ladder-like arrangement with the sidepieces composed of alternating phosphate and deoxyribose units and the rungs composed of the purine and pyrimidine bases adenine, guanine, cytosine, and thymine: the genetic information of DNA is encoded in the sequence of the bases and is transcribed as the strands unwind and replicate (www.libraryadvance.org)

controversial area. For example, controversy surrounds the use of genetic tests by parents to examine the health and sex of their unborn child, the use of genetic testing by employers in vetting staff, or its use by insurance companies when making underwriting decisions concerning the acceptance or rejection of applicants or the imposition of conditions or additional premiums.

New scientific and medical advances in the field of genetics often cause public unease and present many complex social, ethical and regulatory questions (Harper and Clarke, 1990). The uncertainties surrounding the rapid advances being made in genetic testing and its subsequent use in the life insurance underwriting process is just one such development which has caused much consternation and apprehension throughout society and the insurance industry in recent years (Tyler, 2004). The world has never faced a technology with such persuasive potential to predict present and future medical health and inherent human behaviour. The diagnostic and predictive power of genetic testing has introduced a new variable for insurers to select applicants for life insurance with the possibility of using the genetic test results of an applicant to select and/or classify that individual. Traditionally, life insurance companies have sought hereditary data from applicants in the form of family history information. It has been argued that genetic tests do not raise entirely new and unique ethical and legal questions (Murray, 1997). It can equally be argued that the accuracy and reliability surrounding the results of genetic tests may not raise new issues, but genetic testing provides for greater concern regarding such ethical and legal matters. In addition, these concerns are amplified by a change in societal thinking (Giddens, 1991:133-134).

The possibility of insurers using genetic test information has raised considerable fears regarding potential risks to insurability, individual privacy and genetic discrimination (ELSI – Ethical, Legal and Social Issues in the Human Genome Program, 2003). If denied access to genetic test information, insurers are concerned that the principle foundation upon which their business rests would be sacrificed in lieu of societal peace of mind and result in the significantly detrimental consequences of adverse selection (Irish Insurance Federation - IIF, 2001). Although, these fears are based on the unknown future and incomplete knowledge rather than past experience or facts, it is this very characteristic that allows them to be equated with the undesired side effects of production processes and products commonly associated with the ‘risk society’ (Beck, 1992) and late modernity (Giddens, 1990). This chapter intends to examine such

consequences of insurers using and not being permitted use of genetic test results in their underwriting processes in more detail. Following on from this, the risk management strategies undertaken in the Republic of Ireland shall be discussed and our development toward a risk society investigated.

2.2 Life Insurance Underwriting and Genetic Test Results

The life insurance industry in the Republic of Ireland is very competitive and fast growing, with high levels of coverage in major classes of business such as mortgage protection and pensions (Irish Insurance Federation, 2004). The number of operators in the Irish life insurance market has expanded in recent years and this trend appears likely to continue. Insurance is a cyclical business with periods of substantial losses followed by periods of robust profits. Life insurance business is currently in the profit phase of the current cycle (Irish Insurance Federation, 2006). Gross premiums written in Ireland by life insurance companies in 2003 totalled €14.52 billion comprising €7.96 billion Irish risk business and €6.55 billion foreign risk business (Greenford *et al*., 2005). This generation of profit has allowed existing insurers to increase their capacity and write more business and it has attracted some new insurers into the market. Given the size of the industry, it can be said that life insurance business is a significant contributor to the Irish economy and one that the Government would not wish to see damaged. However, it is important to note that the Irish Government is not only faced with concerns of the economy but also the concerns of the society it is designed to protect.

On the other hand, the insurance industry is a commercial entity and is designed for profit making. The business of life insurance is based upon the scientific principle of risk-defined equity, a reasonable and long followed necessity of life insurance companies. The basic concept of risk-defined equity ensures that the premium paid by each insured life is adequate to cover the risk that an individual introduces to the life insurance fund (Brackenridge and Elder, 1998:241). This means that life insurance companies have the right to differentiate cover and premiums on the basis of the level of risk that each applicant brings to the pool. The term ‘equity’ implies that the system is one that is based upon fairness, whereby policyholders with the same or similar expected risk of loss are charged the same (Brackenridge and Elder, 1998:241). According to Pokorski (1995), an insurance scheme is equitable if it respects actuarial rules. However, as Lemmens (2000) argues, such an opinion presupposes

that the use of actuarial rules itself is neutral and not questionable from the standpoint of equity.

The categories by which risks are classified are determined by a mixture of custom, practice and social acceptability, and have been known to change over time. For example, classification by smoker/non-smoker status would not have been considered acceptable 30 years ago, but it is now an almost universal category for all life insurance products (Daykin, *et al.*, 2003:8). The revolution of genetics has presented life insurers with a new factor that can be used to select and classify applicants for life insurance, thereby improving the evidence base for such decision-making. Genetic tests can reduce uncertainty surrounding certain future events, such as dying within a certain time period or suffering from a particular disease. Such a result can contribute towards the evaluation of a risk and is, therefore, usable by the life insurance industry in determining the risk status of an applicant. Insurers have been aware for some time of the genetic heritage of some diseases, hence, the inclusion of family history information as a factor accounted for in their underwriting process. Family medical history is not uniquely genetic in nature in that it may also contain elements relating to the area of residence, quality of living conditions, diet, exposure to infectious diseases, stress and other factors. However, with regards to the hereditary aspect of family history information, the results of genetic tests differ from the information derived from family history analysis only in that the results provide a more accurate and reliable source of hereditary information.

The value of genetic test results to life insurance companies is significant. Where an individual can choose whether or not to buy insurance, and how much they will buy, underwriting of all factors that affect the risk is a requirement to ensure that a fair price is paid; otherwise adverse selection may occur (MacDonald, 1999:83). Therefore, it can be said that if insurers do not take genetic test results into account in their underwriting processes, the result may be an increased susceptibility to adverse selection.[2] This occurs where applicants are not charged a premium commensurate to their risk status and arises in the absence of utmost good faith. This principle of life insurance prescribes that an applicant for insurance must reveal to the insurer all information within their knowledge

[2] There is little empirical evidence anywhere on the incidence of adverse selection, although there was some evidence of its potential impact when, for a period in the U.K., life insurance business in connection with mortgages was offered without any underwriting questions asked.