

External Forces That Impact Profitability in the Insurance Industry

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Abstract

The insurance industry is influenced by many factors that impact profitability. Insurers must do their best to make predictions based on expectations to remain solvent and profitable. Inevitably, they are faced with external factors that are outside of their control. Insurers must be aware of these external forces that may impact profits. External forces impact entire sub-industries of the insurance industry and some companies maintain profitability while others fail. This work intends to take a look at the major external forces that each insurance sub-industry faces and discuss some of the potential solutions that have been developed to minimize the negative impact of these forces, if applicable.

Keywords: external forces, life insurance, health insurance, property and casualty insurance

External Forces That Impact Profitability in the Insurance Industry

Overview

The insurance industry as a whole can be best described as “a private market mechanism for the sharing of risk” (Shea & Hutchin, 2013, p. 659). Insurance is vital to our economy in its ability to diversify risk through pooling and transferring risks from individuals to corporations (Messy, 2005). Insurance companies generate profits by investing premiums while ensuring that they can meet all of their future claims. Boobier (2016) states, “Insurance is heavily affected by a combination of social and economic factors, regulation, intensifying competition and customer behaviors” (p. 14). The influences that impact profitability of insurers can be broken down into internal and external factors. Some internal factors are choices of investment, commission rates, overhead costs, and marketing costs (Rejda & McNamara, 2014). These factors are unique to each insurance company and can be controlled directly by the company. In addition to these internal factors, there are external factors that impact each of the insurance sub-industries. As external forces impact entire sub-industries, individual companies must adjust in an attempt to maintain profitability when faced with factors that negatively affect their business. To further explore these external factors that impact the profitability of insurance companies, it is necessary to break the market down into sub-industries. The major sub-industries of the insurance market are life, health, and property and casualty insurance. Companies must have strategies set in motion to counteract any external forces that negatively impact their profits. While insurers can control internal forces, insurers within each sub-industry, including life, health, and property and

casualty, are faced with unique external forces for which they must adequately adjust to maximize profitability and protect against losses. Due to the unique nature of external forces to each sub-industry, it is imperative to discuss the sub-industries separately. The purpose of this paper is to compile prior research to create an overview of the main external forces that currently impact the insurance sub-industries and discuss the strategies taken to minimize the financial consequences of these external forces if possible.

Life Insurance Sub-Industry

The main difference between life insurance and other types of insurance is the long-term nature of the asset and liability management and the prevalent risks as a result of the long duration (Boobier, 2016). Life insurance can be broken into two broad categories: term insurance and cash-value life insurance (Rejda & McNamara, 2014). Term insurance protects policyholders for a specified period of time whereas cash-value life insurance allows policyholders to accumulate account growth that pays out at their death. With the exception of term life insurance, most life insurance contracts are in force for over 40 years (Rejda & McNamara, 2014). For this reason, life insurance companies must be aware of the external forces and risks that may impact their future profitability.

In addition to selling life insurance, life insurers typically sell annuities. At a basic level, annuities are essentially the opposite of a life insurance product as annuities protect consumers against outliving their retirement funds by providing them income replacement through periodic payments for a specified time frame or until death (Rejda &

McNamara, 2014). The main external forces faced by life insurers are legislation, the interest rate environment, and changes in life expectancy.

Legislation

Legislation plays a vital role in the life insurance sub-industry. Government regulations are in place to ensure solvency, or ability to pay debts, and protect policyholders (Rejda & McNamara, 2014). According to Kunreuther, Doherty, and Michel-Kerjan (2009), there are also regulations on the prices that insurers are able to charge, restricting the ability of an insurer to truly choose their own prices: “severe constraints in insurance prices can amplify moral hazard by decreasing insureds’ incentives to control their risk which can further escalate claim costs and prevent insurers from earning a fair profit” (pp. 914-915). Price regulation is just one form of legislation that impacts life insurers. Legislation is set in place requiring life insurers to hold assets to match liabilities known as reserves, which are computed following guidelines set by state legislators (Rejda & McNamara, 2014). These reserves are regulated by the government and are required to ensure that life insurers are better prepared to meet future financial obligations to policyholders.

Principles-Based Reserving. A new legislative movement, called Principle-Based Reserving (PBR), will change the way that life insurers are required to compute reserves. According to a press release by rating agency A. M. Best (2017), by 2020, all life insurers will be required to calculate their reserves in a manner that satisfies the PBR standard: “Under PBR, companies may need to calculate up to three different reserves depending on the riskiness of the products. The ending reserve is the maximum of a net

premium reserve, a deterministic reserve and a stochastic reserve” (para. 3). Thus, it is evident that this new method of computing reserves will require of companies much time and effort to fully implement.

Since PBR has not yet been completely enforced, time will tell of the magnitude and direction of impact that this new legislation will have on profits. It is costly on the front end as companies need to spend time developing a process to compute reserves in compliance with the new regulation. It is possible that the new guidelines will lead to lower reserves. When an insurer lowers their reserves, profitability is improved (Boobier, 2016). This legislation enforcing a change in reserve computations is an external force as the entire life insurance sub-industry is impacted and individual companies lack control over the matter. The only control they have is how they respond and how quickly they are able to adapt to the changes. Since this legislation has not yet been fully implemented, it is difficult to tangibly measure the financial impact that it will have on life insurers.

Interest Rate Environment

The assets of life insurers tend to be financial assets with long durations, which lead to a great allocation of funds into bonds, mortgages, and real estate (Rejda & McNamara, 2014). As life insurance companies are heavily invested in bonds, mortgages, and real estate, the value of their assets is notably sensitive to interest rates, making the interest rate environment a prevalent external force faced by life insurers. The profits of life insurers are typically positively correlated to interest rates as their profits are computed from the difference between their investment returns and the account growth offered to policyholders. The higher interest rates are, the greater their spread between

investment returns and promised growth to policyholders is. Unfortunately, in recent years, the United States' economy has been at or near historical lows for interest rates, leaving life insurers scrambling to adjust and sustain profitability (Rybka, 2017). Due to the method in which most insurance contracts are established, rate guarantees are set at the time of purchase and rate adjustments typically cannot be made at a later date (Yang, 2007). The entire-contract clause declares that the set policy and application serve as an official contractual agreement between the insurer and the policyholder, forbidding the insurer to change terms without approval from the policyholder (Rejda & McNamara, 2014). This eliminates the option of lowering benefits paid on a policy when in a low interest rate environment. Thus, insurers must come up with alternative solutions to counter the low interest rate environment.

Potential Solutions. Many life insurers are making changes such as reserve manipulations, pausing sales on certain blocks of business, and increasing prices in an attempt to remain profitable in the low interest rate environment (Rybka, 2017). Manipulating reserves allows insurers to allocate more funds into investments which could yield higher profits, instead of leaving them in reserves. To protect policyholders, the government restricts the way insurers can invest reserves (Rejda & McNamara, 2014). Life insurers use a so-called separate account, to spread funds into investments that are not as sensitive to interest rates since separate account investments are not subject to the same restrictions as general investments. Many insurers are forced to halt the sales on some of their life products or increase prices because of the particularly unfavorable interest rate market. In the most severe cases, insurers are being sold to private equity

companies with twenty-four U.S. life insurers recently undergoing this type of transaction (Rybka, 2017).

International Experience. This is not a new or unheard-of predicament as other nations have experienced and are currently experiencing low interest rate environments. In fact, the Japanese life insurance market has been dealing with this for the past ten years (Rybka, 2017). The outcome of low rates was not pleasant for insurers in Japan as they experienced massive losses in investment shortcomings due to low yield bonds. This eventually resulted in a necessity of government assistance for six out of the largest fifteen Japanese life insurers. Due to downward trends in the risk-free rate as well as the sovereign debt crisis in 2011, low interest rate environments are also of recent concern in Europe (Niedrig, 2015). The low interest rate environment naturally encourages European insurers to reallocate funds into riskier assets to make up for the lack of gains but insurers are faced with regulatory standards that limit investment opportunities. There are concerns that a sizable withdrawal of funds from bank bonds would have a negative impact on the European banking industry as life insurers own approximately eleven percent of bank debt in Europe.

Past Insolvencies. In the past, life insurers have failed due to poor investment strategies and their inability to adapt to changes in the financial markets. In 1991, six life insurers were insolvent, with the leading cause being losses sustained as a result of investing their assets in mortgages and junk bonds (Harrington, 1992). According to Scott Harrington (1992), "Impaired and insolvent insurance companies generally wrote large amounts of investment-oriented contracts that promised fixed yields on principal for one

or more years- annuities, guaranteed investment contracts, and interest-sensitive life insurance” (p. 29). This kind of strategy is not forward thinking and leaves insurers vulnerable to external forces such as the interest rate environment. These companies were unable to combat the unfavorable interest rate environment and failed as a result.

Changing Life Expectancies

Another major external force that life insurers are faced with is changing life expectancy. Life expectancy is the expected number of years left for an individual at a specific age (Rejda & McNamara, 2014). Life insurance products protect the policyholder from dying too soon, by providing a lump sum for their loved ones if they die. Therefore, a major external force on writing life insurance is a decrease in life expectancy, which means policyholders are dying faster and thus requiring claims earlier than expected. On the contrary, a major external force on writing annuities is an increase in life expectancy, which means annuitants are living longer and thus receiving payments longer.

Longevity Risk. Life annuities protect individuals from longevity and investment risk in retirement and are becoming increasingly more desired as life expectancies are raising and individuals are starting to outlive their retirement funds (Wong, Sherris, & Stevens, 2017). From the insurer’s perspective, longevity risk is the most prominent risk in regard to writing annuities since increases in life expectancies lead to longer durations of payments that the insurer must make (Wong et al., 2017).

Increasing life expectancy is alarming to life insurers that offer annuities or pensions because there are few ways to effectively hedge against the longevity risk

(Gatzert & Wesker, 2014). While it is limited in supply and not a feasible solution for the entire life insurance sub-industry, reinsurance is often the best option for an insurer to transfer their exposure to longevity risk (Wong et al., 2017). To discuss a more plausible solution to minimize the impact of increases in life expectancy, it is necessary to introduce mortality risk and its implications to life insurers.

Mortality Risk. Unlike annuities, which are susceptible to longevity risk, life insurance contracts carry mortality risk. Mortality risk can be broken down into systematic risk, which refers to the risk that the entire population mortality changes, and unsystematic risk, which refers to risk in regard to the specific individual's mortality (Gatzert & Wesker, 2014). Unsystematic risk can be diversified by simply increasing the size of the portfolio while systematic risk is not diversifiable as it is the risk of the entire population's life expectancy changing. Unlike many other risks, mortality risk cannot be hedged in financial markets (Cox & Lin, 2007). Life insurance actuaries are tasked with utilizing mortality tables and experience data to predict policyholder deaths and project future cash outflows (Boobier, 2016). Increases or decreases in population mortality outdate the tables and thus mortality risk remains an issue. For this reason, alternative methods are sought out to hedge against exposure to mortality risk.

Natural Hedging. Natural hedging, defined by Wong et al. (2017) as “the offsetting risks in life insurance and annuity business” (p. 154), is an alternative solution to improve capital management and profitability. Natural hedging is essentially using exposure to both longevity and mortality risks to offset each other. It is a viable solution for life insurers that offer both life insurance and annuities. According to a study

conducted by Cox and Lin (2007), the price of insurance is inversely related to the amount of natural hedging utilized by the insurer. In other words, the more natural hedging that an insurer does, the lower their products tend to be priced. This allows companies to be more competitive and gain more clients, thus increasing profits. Natural hedging is one option for life insurers to counteract the external force of changing life expectancies.

While natural hedging is a potential solution to hedge against both mortality and longevity risk, it may not be feasible for a life insurer to be completely hedged using this strategy. It is unlikely for an insurer to have a perfect combination of written life insurance and annuities, making it difficult for companies to optimally natural hedge (Cox & Lin, 2007). For this reason, fully natural hedging may be difficult. A conceivable solution for companies that have disproportionate life and annuity books is to find companies in industry to swap life or annuity business with each other, allowing for an optimal natural hedge.

Health Insurance Sub-Industry

Health insurance differs from other types of insurance in many ways. The contracts tend to be annual, which is a significant difference compared to life insurance. This means contracts are restructured more frequently, which allows for rate changes. Healthcare is constantly evolving as new cures and methodologies are developed over time. The health insurance sub-industry can be split up into the private and public sectors. Established in 1965, Medicare and Medicaid are both programs that are part of the public health insurance sector (Rajaram, 2015). Created by the United States federal

government, Medicare is a program that grants health insurance coverage to Americans with permanent disabilities or anyone age sixty-five or older. Medicaid is a federal-state matching program that is focused on providing healthcare for low-income individuals (Morrisey, 2013). Several external forces such as legislative changes, moral hazard, and fraud and abuse impact both the public and private sectors of the health insurance sub-industry.

Legislative Changes

The U.S. health insurance sub-industry is particularly sensitive to legislative change due to the frequency and magnitude of the changes that occur. Brunner and World Bank (2012) claim that maintaining solvency of health insurers is at the forefront of regulators' goals as the failure of private health insurers negatively impacts the health insurance industry as a whole by pushing dissatisfied customers to the public sector. The exit of policyholders from the private sector into the public sector puts immense pressure on government-funded healthcare.

Affordable Care Act. One recent legislative change that impacted the health insurance sub-industry is the Affordable Care Act (ACA) implemented by the Obama administration. Then-president Barack Obama signed this legislation in 2010 and it was affirmed by the Supreme Court by 2012, with some portions becoming implemented immediately while others took until 2014 to be instated (Kilgour, 2015). Essentially, the ACA required that all health plans cover essential health benefits that can be grouped into ten broad categories and required that every individual in the United States have health insurance. This new regulation introduced clearly defined essential health benefits,

eliminated preexisting-condition exclusions, and increased the sheer number of new customers (Cordner, 2015). The ACA requires that at least eighty percent of the premiums that insurers receive are spent providing health care benefits to policyholders and requires insurers to refund the difference to their policyholders if they do not spend the full eighty percent (Kilgour, 2015). This percentage of premium is known as the medical loss ratio (MLR). In regards to the ACA changes to MLR requirements, Cordner (2015) stated:

The constitutional challenge to the MLR lies in the effective cap the MLR puts on profits by requiring health insurers to spend a large, specific portion of their total revenue on health-related and non-administrative expenses, unconstitutionally limiting the rate of return that health insurers can receive, and violating the Takings Clause of the Fifth Amendment (p. 215).

Cordner (2015) also stated that the rebate requirement of the MLR directly cuts into funds insurers previously used for administrative expenses and profits. The ACA also included new restrictions on underwriting, which requires insurers to change the factors that they previously used in underwriting. While some conclusions can be drawn about difficulties that insurers are facing as a result of the ACA, few empirical studies have been conducted to determine the true impact it has had on the health insurance sub-industry thus far.

Moral Hazard

In the first study on moral hazard as it relates to health insurance conducted in 1963, Arrow defined moral hazard as, “widespread medical insurance [that] increases the

demand for medical care” (p. 961). Essentially, moral hazard refers to “price sensitivity of demand for medical care” (Finkelstein, Arrow, Gruber, Newhouse, & Stiglitz, 2015, p. 16). Moral hazard is the idea that health care spending increases as health care increases.

Previous Research. Research has been conducted to test the validity of moral hazard. An experiment conducted in 2008 known as the Oregon Health Insurance Experiment consisted of a lottery for low income Oregon residents that have good enough health to fail to qualify for typical Medicaid, awarding thirty thousand applicants eligibility for Medicaid (Finkelstein et al., 2015). After observing these candidates for several years and compiling data, Finkelstein et al. (2015) concluded that “People on Medicaid, when they are randomly assigned to it, are spending about 25 percent more- which is about \$750 a year for this population- than those who are uninsured” (p. 21). This experiment exemplified the impact of moral hazard on the public health insurance industry. The RAND Health Insurance Experiment conducted in the 1970s studied the private health insurance industry, randomly awarding health insurance to six thousand individuals with most receiving varying levels of cost-sharing plans and some with zero-cost sharing, known as the free-care plan (Finkelstein et al., 2015). These results are consistent with those of the Oregon study, suggesting a negative correlation between higher cost-sharing plans and health care spending. In their analysis of the RAND Health Insurance Experiment, Finkelstein et al. (2015) concluded,

To give just one number: if we look at people assigned to the plan with 95 percent consumer cost-sharing- so they have to pay 95 percent of their medical costs up to

the stop loss- we find that their annual medical spending is almost two-fifths less than the annual spending for those assigned to the free-care plan (p. 23).

Thus, it is evident that moral hazard is a realistic concern in the health insurance sub-industry and lower or zero cost-sharing plans increase costs for health insurers.

Cost-sharing. Insurers implement cost-sharing to confront the issue of moral hazard (Brunner & World Bank, 2012). It is imperative that patient-side cost-sharing exists so that patients are less inclined to spend unnecessarily (Finkelstein et al., 2015). As discussed, previous studies suggest that higher cost-sharing plans lead to lower medical spending. There are a variety of ways in which health insurers can apply cost-sharing strategies such as higher deductibles and requiring payments of coinsurance (Brunner & World Bank, 2012). Coinsurance effectively ensures that policyholders partake in the financial burden of filing a claim, as they must pay a percentage of their medical costs: “cost-sharing mechanisms provide a financial incentive for the individual to consider whether the service sought is really need or just wanted” (Brunner & World Bank, 2012, p. 26). In 2003, Congress approved high-deductible health plans with catastrophic protection and a tax-sheltered health savings account in which savings roll over into the next year, serving as a viable option for insurers to share the cost of insurance with policyholders (Morrisey, 2013). This discourages unnecessary claims and ideally lowers costs for insurers. An alternative solution to combating moral hazard is something known as utilization management, which is using experts to approve or deny payment for health services based on clinical necessity. Evidence suggests that higher cost-sharing plans effectively reduce moral hazard in ambulatory care services while

utilization management is more effective in reducing moral hazard in inpatient care services.

Fraud and Abuse

Healthcare fraud and abuse is an issue that impacts both the public and private sector of the health insurance sub-industry. A 2007 study projected that insurance fraud and abuse amounts to anywhere from three to fifteen percent of healthcare spending, totaling \$100-170 billion annually (Rudman, Eberhardt, Pierce, & Hart-Hester, 2009). Private insurers and government-funded health plans take on the brunt of fraudulent activity in losses but the financial impact eventually reaches employers that sponsor plans and individual policyholders through increasing prices due to the greater losses experienced by health insurers (“Healthcare Fraud,” 2004). Healthcare fraud and abuse can look many different ways. According to Rudman et al. (2009):

Some of the most common types of fraud and abuse are misrepresentation of services with incorrect Current Procedural Terminology (CPT) codes; billing for services not rendered; altering claim forms for higher payments; falsification of information in medical record documents, such as International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes and treatment histories; billing for services that were not performed or misrepresenting the types of services that were provided; billing for supplies not provided; and providing medical services that are unnecessary based on the patient’s condition (p. 2).

Though worth the potential loss aversion, investigation of fraudulent claims can be a trying task for insurers. In 2012, the Medicare Fraud Strike Force identified an

organized crime group that billed Medicare \$452 million for services that were never actually performed (Schreiber, 2013). One insurer that investigated approximately \$726,000 in suspicious claims was able to recuperate over \$617,000 as a result of the investigation (“Healthcare Fraud,” 2004). In the past, insurers would investigate potentially fraudulent claims after the claims had already been paid out, which would often take several years to recover the funds (Schreiber, 2013).

Predictive Analytics. Due to the magnitude of potential losses, it is vital that health insurers do what they can to combat fraud. According to “Healthcare Fraud” (2004), “As health plans aim for increased success and profitability, a full-scale anti-fraud and abuse program can be as successful a profit-building strategy as raising premiums or adding new members” (p. 40). To improve policyholder experience and satisfaction, claims processing in the past has been largely focused on efficiency but increasing fraud has shifted the focus. Claims processing is becoming increasingly utilized in fraud detection. Insurers are beginning to take advantage of predictive analytics technology to detect fraud before it occurs by identifying key factors of suspicion and flagging suspicious claims (Schreiber, 2013). Highmark, a prominent health insurer, claimed that the utilization of predictive analytics detected 20 percent more fraudulent activity than previous methods. The use of predictive analytics efficiently detects fraudulent activity and helps health insurers avoid losses that may have gone undetected in the past.

Property and Casualty Insurance Sub-Industry

For the purpose of this study, the discussion of property and casualty insurance will be strictly limited to the scope of auto insurance, homeowners insurance, and commercial property insurance. Though policies can vary, homeowners insurance protects policyholders from accidental losses on their home and property within. Auto insurance policies also vary, with coverages offering protection against liability, medical payments, uninsured motorists, or damage to one's own car (Rejda & McNamara, 2014). Commercial property insurance policies range in price and complexity, with the common purpose being to protect businesses from material losses or lack of income as a result of accidents or catastrophes. Due to the nature of property and casualty insurance, the major external forces that impact profitability of insurers are catastrophes, insurance fraud, and future technology.

Catastrophes

Catastrophes are a major risk in the property and casualty insurance sub-industry. They are difficult to predict as a result of their infrequent nature. Grossi, Kunreuther, and Patel (2005) stated, "natural disasters pose a set of challenging problems for insurers because they involve potentially high losses that are extremely uncertain" (p. 36). While it is possible for natural disasters to result in automobile claims, residential and commercial properties are most vulnerable to catastrophes. Natural disaster losses significantly affect insurers, as they must payout massive amounts of claims at one time. On top of natural disasters, man-made disasters can occur and lead to significant losses. To a much smaller degree, life insurers are also susceptible to potential catastrophic loss

(Messy, 2005). It is estimated the life insurers paid out approximately \$1 billion due to deaths as a result of September 11 attacks on the World Trade Center (Dixon & Stern, 2004). The costs to property and casualty insurers on the World Trade Center structures alone are estimated to be approximately \$3.6 billion. In 2003, the total property losses totaled \$16.2 billion from natural disasters and \$2.3 billion from man-made disasters (Messy, 2005). Evidently, the property and casualty sub-industry is most vulnerable to catastrophic loss.

The limited data available on catastrophes makes it challenging for actuaries to properly model the risk associated with catastrophic events leaving typical actuarial methods for modelling useless (Grossi et al., 2005). The recent increase in catastrophic events has led to a greater demand of reinsurance by insurers, but supply is low as reinsurers are still recovering from recent losses (Messy, 2005). To minimize catastrophe risk, property insurers limit the amount of property coverage that they offer and charge higher premiums in high-risk areas (Grossi et al., 2005). Although it is important for insurers to diversify their issued policies, this is not enough to protect them from the potential large losses that result from catastrophes. Therefore, insurers must seek alternative solutions to offset catastrophe risk and minimize the consequences of catastrophes.

Reinsurance. Reinsurance is an option for insurers trying to minimize possible losses sustained from catastrophes. Typical catastrophe reinsurance contracts payout if losses exceed an established threshold and are known as Excess-Of-Loss policies (Lin & Lai, 2012). Catastrophe reinsurance contracts cannot be traded on the financial markets.

Rather, they are one-time agreements to transfer some or all of an insurer's catastrophic risk to a reinsurer (Chang & Chang, 2017). The issue with the catastrophe reinsurance market is the limited availability and high demand from property and casualty insurers, with market prices often being higher than fair prices due to information asymmetry between insurers and reinsurers (Lin & Lai, 2012). Since catastrophe reinsurance can be limited and expensive, insurers must pursue other solutions to minimize or transfer catastrophe risk.

Catastrophe Bonds. An increasingly popular strategy for insurers to minimize catastrophe risk is to issue catastrophe bonds (CAT bonds). While reinsurance can be useful to protect against losses due to catastrophes, CAT bonds offer protection over several years as opposed to the typical reinsurance contract (Cummins, 2008). As a response to inevitable catastrophe risk and losses, insurers began using CAT bonds in the 1990s (Kish, 2016). CAT bonds are beneficial to insurers because they can seize coupon payments to bondholders if sustained losses due to a catastrophic event exceed a trigger point, which is defined in an agreement between both parties, allowing insurers to transfer a portion of the catastrophe risk to bondholders. They serve as protection against catastrophic events for insurers, raising funds for insurers and reinsurers to payout unexpected claims due to catastrophes (Cummins, 2008). Now that hurricane CAT bonds have been around for a while and investors have endured a few hurricane seasons, investors have a better understanding of the associated risks and potential losses, which has improved their view of investing in CAT bonds (Messy, 2005). CAT bonds are fully collateralized and lack general correlation with securities markets, which entices

investors due to minimal credit risk and the ability to add diversification to a financial portfolio (Cummins, 2008).

Insurance Fraud

Insurance fraud in the property and casualty sub-industry occurs when a policyholder fabricates a loss or intentionally causes a loss to occur. Many insureds would benefit from faking or intentionally causing a loss to file claims that they otherwise would never receive (Derrig, 2002). After a long period of making payments, policyholders feel entitled to insurance which often leads to fraudulent claims (Boobier, 2016). It can be seen as an opportunity to utilize the insurance that they have been paying for and would otherwise never be able to take advantage of. This is problematic as insurance is priced specifically for coverage over accidental losses (Derrig, 2002). Illegitimate claims are not the only form of insurance fraud that insurers need to be aware of. Another form of insurance fraud that is significant, particularly in automobile insurance, is buildup, or exaggerated loss amounts (Tennyson & Salsas-Forn, 2002). Many studies point to buildup being significantly more common than outright illegitimate claims.

Fraud Estimates. It is evident that insurance fraud is a widespread issue and not uncommon. Following a study conducted by the Insurance Research Council (IRC) on auto insurance fraud in 2012, Elizabeth Sprinkel, senior vice president of the IRC, stated, “efforts to lower insurance costs must include measures aimed at reducing the amount of fraud and buildup in the system” (as cited in “Insurance Research Council,” 2015, para. 4). The study estimates that fraud and buildup consisted of \$5.6 billion to \$7.7 billion in

excess payments to auto injury claims in the United States, accounting for somewhere between thirteen to seventeen percent of total auto injury claims. The amount of insurance fraud and buildup varies from state to state with the highest rate among personal injury protection claims belonging to the state of Florida at 31 percent.

Claim Processing. Due to the frequency of insurance fraud and buildup, insurers must take action to minimize its impact and attempt to detect these cases prior to paying out claims. As a part of claim processing, insurers typically sort claims into three different categories known as express claims, target claims, and dud claims (Derrig, 2002). Express claims are paid immediately, target claims require further evaluation, and dud claims are deemed illegitimate immediately and never paid out. The use of predictive analytics to identify triggers in claims, such as claims made right before renewal, immediately after purchase, or short-term policies resulting in claims related to travel, is common practice for insurers trying to detect fraud (Boobier, 2016). While other triggers are utilized in predictive analytics, insurers are hesitant to share them with the public as it would make it easier for fraudulent policyholders to beat the system. The target claims that require investigation add unnecessary costs onto the insurer if they are not fraudulent but would be even more costly to an insurer if fraudulent claims were paid out without further investigation. Sorting claims allows insurers to take a deeper look only on suspicious claims by accelerating unsuspecting claims, which reduces costs and improves customer service experiences for policyholders.

Investigating Claims. While improving claims processing to identify potential fraudulent claims is vital, further actions must be taken after the claims are identified.

Insurers use a variety of methods to further investigate suspicious claims including independent medical exams, on-site investigations, claimant and witness testimonies, referral to a Special Investigative Unit, and activity checks (Tennyson & Salsas-Forn, 2002). Each method has a unique purpose. Independent medical exams, in which the insurer sends a doctor of their choice to conduct an examination, are a common practice, second only to requesting sworn statements from the insured and witnesses.

Unfortunately, these methods do not come without a cost to insurers as inspections are costly but necessary to minimize the negative financial impact of insurance fraud on profits (Boobier, 2016).

During the underwriting process, many insurers take precautionary measures to avoid fraud. Prior to policy issuance, the applicant's claim and criminal history is thoroughly investigated and accounted for. Declining coverage can result. Insurers are constantly seeking new ways to detect and deter fraudulent claims.

Future of Technology

Autonomous Cars. Technology is constantly evolving. As a result, automobiles are constantly changing and improving. The development of autonomous cars is promising, with reputable companies such as Google and BMW at the forefront of development (Hevelke & Nida-Rümelin, 2015). Autonomous vehicles introduce new questions regarding liability as it may be challenging to determine whether the owner or manufacturer is responsible for an accident. Liability auto insurance is a major aspect of the property and casualty sub-industry. The challenges changing the landscape regarding

liability could disrupt the auto insurance industry as autonomous cars would operate on their own, eliminating the factor of human error.

Future Challenges. There is potential for the personal automobile insurance sector to shrink by sixty percent within the next twenty-five years as a result of autonomous cars and the resulting decline in accident frequency (Fallon, 2016). Joe Schneider (as cited in Fallon, 2016), a managing director at KPMG, stated, “Once the massive market disruption begins and traditional insurance business models are flipped upside-down, we expect significant turmoil across the industry” (para. 15). New issues such as hacking and cyber-attack will cause concern once autonomous cars are on the roads (McDonald, 2013). It is likely that insurers will need to create an entirely new auto insurance product if autonomous cars become a reality. Creating new products demands time and capital. As a result of the futuristic aspect of autonomous cars and the lack of observable data on the matter, the impact of autonomous cars on the property and casualty sub-industry is difficult to foresee with certainty. However, it is evident that the changes will pose challenges for insurers.

Conclusions

While this research compiles many findings, it also has limitations. One such limitation is the difficulty in measuring the true impact that some of the discussed external factors have directly had and will continue to have on profits. The recent legislative changes that have been discussed such as the PBR and the ACA lack data quantifying the effect that the legislation has had directly on profits. Another limitation is the speed at which changes are occurring, especially in the healthcare industry. It is

challenging to measure the impact of new legislation when the industry experiences change rapidly. Some external forces, such as the direct impact of legislative changes on profitability in the property and casualty industry, lack research and data. Many of the discussed external factors will require future and ongoing research to determine the true effects on the insurance industry. It is suggested to dig deeper into other external forces that impact the profitability of insurers, as this work only encompasses a few major factors for each sub-industry.

As a result of its unpredictable nature, the insurance industry as a whole is vulnerable to external factors and insurers must adjust accordingly to maintain profitability. The external factors tend to be undiversifiable risks that require insurers to devise strategies to mitigate. Insurers must be constantly looking toward the future to identify potential changes that may disrupt their sub-industry. Remaining ahead of the curve and quickly responding to adversity serves as a competitive advantage in the insurance industry. Each insurance sub-industry faces unique external factors that insurers must prepare for to remain solvent and profitable in order to honor their future claims for policyholders.

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