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Crop Insurance Strategies for Mitigating Net Underwriting Losses

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This is to certify that the doctoral study by

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MBA, Brenau University, 2009

BBA, Kennesaw State University, 2005

Doctoral Study Submitted in Partial Fulfillment

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Crop insurance is an essential risk management tool for America's agricultural producers because a single crop failure or disastrous year can eliminate the results of multiple years of profitability. Crop insurance is designed to provide financial protection to farmers; however, insurance managers who lack managerial underwriting strategies disrupt companies to the point of financial distress. Self-insurance and self-protection theory were the conceptual frameworks for this single-case study to explore successful strategies that insurance managers used to mitigate net underwriting losses. Four insurance and senior strategic managers from an insurance company in the midwestern United States were recruited through a purposeful sampling method to participate in semistructured interviews. Data gathered from these interviews and from the company's website and its public financial reports were analyzed through a reflective interpretation process, which was guided by the Van Kaam method. Five themes that emerged from this study, including disruptive technology, traditional underwriter vs. integrated profit-and-loss expert, streamlined applications by in-house technology or strategic alliances, opportunity assessment, and underwriting discipline. By implementing executive support for strategies to mitigate net underwriting losses, managers of crop insurance companies can overcome the challenges of net underwriting losses. The findings from this study may promote positive social change by lowering insurance premiums to the farm community and enabling managers to reduce risk to companies and farmers by distributing financial risk across a pool of participants thus enriching the stakeholders' investments.

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Dedication

To Dad. Dad, I continue to light up the path of your footprints. Your fire is still burning.

Acknowledgments

I would like to thank my family for their love, patience, and tolerance during those special days and nights of Doctoral frustrations. I would like to thank the Walden University Faculty who encouraged me and helped me throughout this journey. Special thanks to Dr. Ron Black, Dr. Isabel Wan, Dr. Rocky Dwyer, and Dr. Susan Davis for their repeated reviews on my study and their guidance. Finally, but most importantly, I would like to thank the doctoral students under Dr. Ron Black - our mentor- for providing constant encouragement and reviews.

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Section 1: Foundation of the Study

Underwriting gain is vital to the success of any insurance company (Burca & Batrinca, 2014). Managers of insurance companies should complete a comprehensive risk assessment to ensure underwriting success (Just & Pope, 2013). Underwriting losses are evident where there is lack of alignment between corporate goals and surrounding processes, multiple sources of information, diversely talented staff, and underlying technology. Angelil (2016) claimed that highly skilled managers could connect these attributes with the company strategy to architecturally reduce flaws and create a competitive advantage. Managers of crop insurance companies can reduce flaws and create a competitive advantage by exploring the strategies for mitigating net underwriting losses.

Background of the Problem

Managers of crop insurance companies face a range of challenges in overcoming net underwriting losses (Sinha & Tripathi, 2016). Managers of insurance organizations use legacy strategies for mitigating underwriting challenges that are now ineffective. Outdated strategies are obstinate and costly to apply, and sometimes insurance companies require subsidies from governments to mitigate net underwriting losses (Woodard, 2016).

Crop insurance companies' underwriting income may fluctuate from year to year with natural and other disasters, such as droughts, storms, hurricanes, and fires, that lead to enormous underwriting losses. Often, when a crop insurance company must pay more claims than expected and the premiums it received do not cover the overall expenses, it results in underwriting loss (Colson, Ramirez, & Fu, 2014). Underwriting loss is a

reflection of the inefficiency of the insurance company's underwriting activities (Du, Feng, & Hennessy, 2016). Underwriting losses arise from large claims and disproportionate expenses evidently indicating that some managers of crop insurance companies lack the strategies for mitigating net underwriting losses.

Crop insurance companies that have entered into a reinsurance contract with the Federal Crop Insurance Corporation (FCIC) split the underwriting gain or loss according to the Standard Reinsurance Agreement (SRA; Annan & Schlenker, 2015). The SRA contracts indicate that managers of crop insurance companies lack the strategies to mitigate underwriting losses. Also, some crop insurance companies went out of business because of the costs of underwriting losses (Lusk, 2016). In 2012, droughts in the United States skyrocketed reinsured crop insurance company indemnity payments, resulting in gigantic underwriting losses (Arshad, Amjath-Babu, Kächele, & Müller, 2016). Therefore, reinsurance and current strategies to mitigate net underwriting losses do not provide enough financial cushioning for crop insurance companies.

Problem Statement

Managing catastrophes with scarce resources is a predicament for managers of crop insurance companies (Volkman-Wise, 2015; Wolfrom & Yokoi-Arai, 2015). Managers of crop insurance companies have seen multiperil crop insurance premiums and government subsidies drop from $14 and $7 billion in 2011 to $9 and $5 billion in 2014 respectively while insured acreage rose from 250 million to 300 million acres and indemnity in 2012 was a record-breaking payment of $17.3 billion (Economic Research Service [ERS], 2016). The general business problem is that some managers of crop

insurance companies rely only on reinsurance to mitigate net underwriting losses. The specific business problem is that some managers of crop insurance companies lack strategies to mitigate net underwriting losses.

Purpose Statement

The purpose of this qualitative single case study was to explore successful strategies that managers of a crop insurance company use to mitigate net underwriting losses. The study population consisted of managers of a crop insurance company in the Midwestern United States of America who have successful strategies for mitigating net underwriting losses. The results of this study may provide crop insurance management with information and a better understanding of underwriting loss strategies that might help them improve their competitiveness in the industry. The results of this study may contribute to positive social change by lowering insurance premiums to the farm community and potentially increasing supplemental income, encourage more farming, prosperity in farming, and reduce foreign food imports.

Nature of the Study

Qualitative methodology was applicable for this study. Qualitative researchers use open-ended questions to discover what is occurring or has occurred (Hashimov, 2015). In contrast, quantitative researchers use closed ended questions to test hypotheses about variables relationships or differences (Bonett & Wright, 2015). Mixed methods research includes both a qualitative and a quantitative element (Bezzina & Saunders, 2014). Hypotheses testing is part of a quantitative study or the quantitative portion of a mixed method study (Bonett & Wright, 2015). I did not test any hypotheses because it was not

appropriate for exploring the strategies that managers of the crop insurance company applied to mitigate net underwriting losses. The use of a qualitative methodology in collecting data from managers of a successful crop insurance company may help to understand the strategies of mitigating net underwriting losses.

Case study design was applicable for this study. Researchers in case studies investigate a modern-day phenomenon in depth and in its real-world context (Yin, 2014). Case study design was appropriate for my study because through this means, I could have a solid focus on the complexity of the phenomena. In ethnography study, researchers employ cultural themes like social parameters within organizations and families and therefore, it was not possible to address the specific problem of this study (Vesa & Vaara, 2014). Researchers use focus groups to collect data when the interaction among interviewees will likely yield the best information (Bud & Nistor, 2015). However, a researcher may fail to see all the informal communications of participants and have difficulties scheduling the same time and place during the interview. A narrative design entails an inquiry into participants' lives and retelling the story in relation to the researchers' own experience and views (Lohuis, Sools, van Vuuren, & Bohlmeijer, 2016). The narrative approach did not work for this study because of the need to be objective and not include my perceptions of the business problem.

Research Question

The central research question was: What strategies do crop insurance company managers use to mitigate net underwriting losses? To create an answer to this

fundamental question, I asked the following questions in a semistructured interviews to the selected participants.

Interview Questions

1. What strategies have you used to mitigate net underwriting losses?
2. What strategies did you find worked best to mitigate net underwriting losses?
3. How do you assess the effectiveness of your strategies for mitigating net underwriting losses?
4. How did your employees respond to your different techniques to mitigate net underwriting losses?
5. How do you communicate net underwriting mitigation strategies with your employees?
6. How did your organization address the key barriers to implementing the strategies for mitigating net underwriting losses?
7. How did your organization integrate net underwriting strategies into its core values and identity?
8. How does your organization promote and reward the innovation efforts and strategies of net underwriting?
9. What would you like to add that we did not address about the strategies of mitigating net underwriting losses?

Conceptual Framework

Hiebert (1983) proposed the self-insurance and self-protection theory which suggested that production process is random because accident is a factor that impacts

production loss. Therefore, a company can self-insure by expending more resources to avoid accidents. According to Hiebert, an expenditure to avoid accidents decreases loss variability. Hiebert argued further that the self-insurance and self-protection theory is the expenditure on selfcare which reduces the probability of loss without affecting the magnitude of loss. Hiebert contended that managers who self-insure should spend more on reinsuring to reduce the randomness of the occurrence of losses. Hiebert suggested that expenditure on self-insurance is a risk aversion strategy, and that as demand for a commodity increases, risk and loss expenditures decrease. The concept of self-protection mandates that to protect oneself from losses requires more complementary and corresponding inputs rather than just substituting contributions. Hiebert's (1983) self-insure and self-protect model aligned with this study for exploring strategies that managers of crop insurance companies use to mitigate net underwriting losses.

Operational Definitions

Agricultural commodities: Food and agricultural products (Borychowski & Czyżewski, 2015).

Crop insurance agent: Person licensed by state and specializes in selling insurance policies to farmers (Sundar & Ramakrishnan, 2016).

Insurance: Risk management systems whereby individuals, business, and other organizations or entities exchange premium for a guaranteed compensation. The compensation is guaranteed in the event of a loss resulting from certain perils under specified conditions (Choudhury, Jones, Choudhury, & Spaulding, 2015).

Multiple peril crop insurance: Crop insurance that covers yield losses from most natural causes (ERS, 2016).

Natural disaster: A serious disruption triggered by a natural hazard causing human, material, economic or environmental losses, which exceeds the ability of those affected to cope (ERS, 2016).

Risk management: The option and choice to reduce financial distress that can result from uncertainties related to weather, yields, prices, government policies, global markets, and other factors (Lyu & Barré, 2017).

Underwriting: A task of pricing risk and setting fair premium rates that adequately cover the true cost of insuring policyholders (Raines, Nesson, Lackey, Fritts, & Bush, 2015).

Assumptions, Limitations, and Delimitations

Assumptions

The assumptions are the unverified research techniques employed in the research that reflect what the researcher believes to be true (Leedy & Ormrod, 2013). An assumption is a statement that is possibly true; yet, it is not verifiable (Noble & Smith, 2015). There were two assumptions in this study. The first assumption was that managing officials are involved with strategies to mitigate net underwriting losses. These officials may have articulated experiences related to the phenomenon. The second assumption was that participants answered the interview questions fairly and candidly.

Limitations

Research weaknesses beyond an investigator's control are the study's limitations (Bouzon, Augusto, & Manuel, 2014) There were two limitations in this study. This first limitation was that a small sample prevents generalization of the research findings to a broader population (Levy, Fabian, & Peters, 2015). The second limitation was that participant skills and abilities may limit the depth and richness of their interview question responses.

Delimitations

Delimitations are the boundaries of the study (Holloway & Galvin, 2016). The first delimitation was that participants of this study were only managers of an insurance organization located in the Midwestern United States. The second delimitation was that, as the primary instrument in the data collection process, I might have reflected my experience, potential bias, and knowledge in the themes of the study.

Significance of the Study

Contribution to Business Practice

Managers may reduce risk to crop insurance companies and farmers by providing financial services that distribute risk across a pool of participants (Feng & Hayes, 2016). Arshad et al. (2016) argued that typically, a nations GDP grows in line with crop insurance. Consequently, rising prices rather than policy numbers going up mostly cause revenue increases. Crop insurance growth is not as strong as the insurers might have expected (Glauber, 2016). Poor growth and lower profits may be determinants of the continued increasing existence and persistence of crop insurance companies in the

industry. The results of this study may aid managers of crop insurance companies in identifying and developing strategies to mitigate net underwriting losses to enrich the stakeholders' investments.

Implication for Social Change

The actuarial process of setting premium rates is a daunting task. Insurance companies must periodically review premium rates for consistency with sound actuarial principles to assure the best estimate of premium dollars needed to pay future anticipated losses (ERS, 2016). This periodical balancing process could end up in high premium rates. The results of this study may lead to the reduction in premium paid by farmers which becomes supplemental income and an encouragement to farm far more and preserving farmland and thereby could help U.S. farms to prosper (Kitchens & Fishback, 2015). Farmers could use the premium insurance savings to produce more and potentially reduce consumers' cost from importing foreign foods. The results of this study may contribute to positive social change by lowering insurance premiums to the farm community and promote positive social change.

Review of the Professional and Academic Literature

The purpose of this qualitative single case study was to explore the strategies that managers of crop insurance company use to mitigate net underwriting losses. My goal for this study was to contribute to the success of managers of crop insurance. Through the findings of this study, I hoped to contribute in the reduction on reinsurance reliance by helping managers mitigate net underwriting losses. I researched peer-reviewed articles

and relevant books to complete the review of the professional and academic literature regarding the phenomenon of net underwriting losses.

My review of quantitative, mixed-method, and qualitative methodology produced the appropriate research methodology. The qualitative method of research suited this study. The problem statement and the literature reviews of similar studies, including one by Kalkavan and Katrinli (2014), applied the qualitative research method to analyze the insurance industry in Turkey. Zhang, Yin, Wang, Ye, and Zhao (2015) applied a qualitative methodology approach in a case study of the crop insurance premium rate-making based on survey data. Karanja, Bulte, Giller, McIntire, and Rufino (2016) used the qualitative research method to study migration and self-protection against climate change. Fong (2015) employed an extensive qualitative research methodology in similar studies. My review of the literature showed that the selection of the qualitative method was appropriate as a research approach for this study and its self-insurance and self-protection conceptual framework.

I retrieved articles and journal entries from ProQuest Central, Emerald Management Journals, Science Direct, ABI/Inform Complete, Business Source Complete/Premier, and PsycINFO. I used the following keywords when conducting searches: *reinsurance, crop insurance, underwriting losses, risk management, government subsidies, weather calamities, managing crop insurance company, farming*, *farmers insurance, self-insure, self-protect, cost of insurance, insurance demands,* and *premium and subsidy*. I cross-referenced each source to ensure that I chose peer-reviewed material using Ulrich's Global Series Directory. The references in this review totaled 63,

of which 60 (95.2%) were peer-reviewed articles and one governmental website. Out of the 63 peer-reviewed references in the literature review, 56 had been published within the last 5 years, and seven had not, implying that 88.9% of the sources had been published within the last 5 years. The 88.9% is well above the DBA Rubric minimum requirement of 85%. I included two books in the literature review (Table 1). My emphasis for the literature review was investigating and determining reasons why managers of crop insurance companies lack strategies to mitigate net underwriting losses and how those reasons supported my problem statement, using self-insurance and self-protection as the conceptual framework.

Table 1

Literature Review Reference Content

Reference	**Total**	**< 5 Years**	**> 5 Years**	**% < 5 Years**
Peer-reviewed journals	60	53	7	88.3%
Books	2	2	0	100.0%
Government websites	1	1	0	100.0%
Non-peer-reviewed journals	0	0	0	0.00%
Totals	63	56	7	88.9%

I have organized the literature review into five essential categories: (a) conceptual framework and its evolution, (b) impact of technology in crop insurance, (c) risk management, (d) introduction to underwriting: loss, gain, and existing strategies, and (e) evidential management issues with underwriting losses. I used critical analysis and

research to describe the conceptual framework for this study, encompassing the conceptual framework section presented previously in Section 1. In the introduction to underwriting losses, I discuss pertinent terms and analyze and cross-reference the various strategies that give rise to losses. Next, I discuss current responses to the assessed problem of the effectiveness of investments associated with mitigation strategies. In this last section, I break down the literature review of the phenomenon of underwriting loss according to documented strategies with mitigation through price, education, globalization, government involvement, sound leadership, reinsurance, internal control, cost cuts, diversification, and fraud reduction.

Self-insurance and Self-protection Conceptual Framework

Hiebert (1983) proposed the self-insurance and self-protection theory. In the proposal, Hiebert suggested that production process is random because an accident is a factor that effects production loss. Therefore, managers can self-insure a company by expending more resources to avoid accidents. Farmers can spend more and above the costs of farming by buying insurance policies while a company can protect itself from house fires, lawsuits, and many others.

According to Hiebert (1983), expenditure to avoid accidents decreases loss variability. Hiebert argued further that the self-insurance and self-protection theory is the expenditure on self-care, which reduces the probability of loss without affecting the magnitude of loss. Hiebert contended that managers who self-insure should spend more on reinsuring to reduce the randomness of the occurrence of losses. Reinsuring implies that managers must find means to self-insure or selectively transfer risk to other

companies that are either insurance or reinsurance companies. The selection of insurance is a financial risk management tool in which the insured transfers a risk of potential economic loss to the insurance company that mitigates it in exchange for monetary compensation by way of the premium payments (Gu, Yi, & Ye, 2014).

Hiebert (1983) suggested that expenditure on self-insurance is a risk aversion strategy and that as demand for commodity increases, risk and loss expense decreases. The concept of self-protection mandates that to protect oneself from losses requires more complementary and corresponding inputs rather than just substituting contributions. Hiebert's (1983) self-insure and self-protect model aligned with this study for exploring strategies that managers of crop insurance companies use to mitigate net underwriting losses.

Self-insure and self-protect is a financial risk mitigation strategy (Martínez, Pascual, & Maturana, 2016). Financial risk occurs in personal life as well as in the crop business operations. Financial risk causes a good deal of time and money spent to self-insure and self-protect or, as Adams, Hoejmose, and Kastrinaki (2017) argued, mitigating is the act of managing business risk. Mitigating financial risk centers around the lowering and eliminating or reducing risk factors that could ultimately leave the farmer or the crop business in financial devastation (Moreno, Vázquez, & Watt, 2017). One of the risk mitigation techniques is insuring the portion of the business that is exposed to adverse risk.

One way to self-insure and self-protect is to secure a means for guaranteeing protection or safety through insurance infancy (Hofmann & Peter, 2016). Individuals and

businesses may take the advantages of insurance. It only takes one hurricane or storm to wipe out a farmer's entire crop field. Therefore, covering a farm in as many manners as possible will help mitigate losses arising from natural disasters (Afroz, Akhtar, & Farhana, 2017). Agricultural producers purchase crop insurance for protection against calamities and undesirable yields/revenue. Farmers, ranchers, and others protect themselves against either the loss of their crops because of natural disasters, such as hail, drought, and floods, or the loss of revenue. Losses of revenue sometimes occur because of declines in the prices of agricultural commodities.

Crop-hail and multiple peril crop insurance (MPCI) are the two types of crop insurance available to producers in the United States (Barnett, 2014). Currently, private insurers provide crop-hail insurance policies directly to farmers. Crop-hail coverage is popular because hail has an exclusive ability to destroy a significant part of a planted field, area, or county (Muller, Schmeiser, & Wagner, 2016). MPCI is a type of insurance that covers crop losses, including lower yields, caused by natural events, such as adverse weather (hail, frost, damaging wind), disease, drought, fire flooding, and insect damage (Just & Calvin, 1999). The U.S. Federal Government supports and regulates the MPCI program. Private-sector crop insurance companies and agents services the MPCI program.

Private-sector crop insurance companies provide crop insurance services to producers. Insurance companies use accurate information, effective tools, and timely resources to deliver products to mitigate the risk and uncertainty of loss for America's farmers (Chi & Meng, 2014). Managers of insurance companies create value to their

principals through an increase in underwriting gain. Underwriting gain is an insurance profit that increases investment returns for the principals (Bawa & Bhagat, 2015). Underwriting gain is an earning from premiums and fee income minus claims and other insurance-related adjustments and expenses (Livingston, Roberts, & Yue, 2015). Crop insurance claims arise from catastrophes. A catastrophe on a farm triggers a chain of events including an insured farmer notifying the insurance company of a loss and subsequently receiving a loss payment (Muller et al., 2016).

Evolution of the self-insurance and self-protection model. Self-insurance is the management of risk by setting aside a pool of money for use should an unexpected loss occurs (Adams et al., 2017). Hypothetically, a person can self-insure against any type of loss. Nevertheless, in practice, risk takers choose to buy insurance against potentially large and infrequent losses. For example, at a minimum, most people carry auto insurance and health insurance (Narayanan, 2014). An auto insurance is a contract between the driver and the insurance company wherein the insured agrees to pay the premium and the insurance company agrees to pay losses as defined in a policy. Auto insurance agents provides property, liability, and medical coverage. Property coverage pays for damage to or theft of the insured's car. Agricultural producers decided to mitigate on risks after experiencing calamities such as hurricanes, floods, fires, earthquakes, and tornadoes (Arshad et al., 2016).

Agricultural producers are involved in the farming of crops, livestock, and fisheries. These farmers absorb a high percentage of the economic impact culminating from medium and largescale natural hazards and disasters in developing countries (Craft

& Langstraat, 2016). Disasters destroy critical agricultural assets and infrastructure, and they cause losses in the production of crops, livestock, and fisheries.

A natural disaster can change agricultural trade flows and may cause losses in agricultural-dependent manufacturing subsectors such as the textile and food processing industries (Lyu & Barre, 2017). Brick and Visser (2015) suggested that disasters can slow economic growth in countries where the sector is vital to the economy and where it makes a significant contribution to national gross domestic product (GDP). Agriculture contributes significantly to the national GDP of many countries (Lyu & Barre, 2017). Farmers are seeking disaster risk reduction and resilience building within the agricultural sectors to counter costs arising from natural disasters (Di Falco & Bulte, 2013).

Farmers can self-insure by increasing their savings as a security against farm losses. Di Falco and Bulte (2013) suggested that these farmers have the option of self-insuring against certain risks. Through a self-insurance, farmers could eradicate the need to purchase an insurance policy (Hofmann & Peter, 2016). For example, a farmer who does not want to pay premiums to an insurer will establish a fund that can be used for crop losses. Although the self-insure approach may protect farmers from paying insurance premiums, farmers risk not having enough money to repair and restock their farms if their losses cost more than the money they have. In such instance, Hofmann and Peter (2016) argued that farmers can protect themselves from unexpected increases in the severity or frequency of claims with self-protection.

Technology

The Internet evolution drastically changed the insurance industry. The Internet has opened the insurance market wide open to many potentials (Brick & Visser, 2015). Technology brought the improvement and ease of doing business with life insurance agents. Farmers can go online to find the least expensive rates, which includes the ability to search international insurance companies to find the appropriate coverage. Farmers can take phone or aerial pictures of farm size or reported losses. Online search is one source of motivation for insurance companies to merge with other financial services. However, in the farming industry, risk aversion is often considered to be an essential element as a poverty-trap cycle. Unfortunately, individuals who are risk-averse – and thus unwilling to invest in potentially profitable but riskier modern inputs – remain poor, while wealthier individuals who can insulate themselves from risk will benefit from technological innovations (Lyu & Barre, 2017).

Leaders have been seeking cooperation between national governments and crop insurance companies because farmers' preferences in risk mitigation needs education and support. Brick and Visser (2015) argued that pure risk preferences are determinants in farmers' adoption decisions of the crop insurance. Brick and Visser also recognized the inescapable impact of technology. Globalization due to the Internet has increased the market sizes and the integration of services. Globalization in an integrated network is an advantage that gives the insurers a domestic advantage with customers who are more concerned with convenience than price. However, during the pre-Internet period, the self-insured and self-protected existed. Shankar and Quiggin (2013) posited that access to a

standard stochastic production technology could produce a stochastic output which a randomly determined outcome. A stochastic output is an ingredient to risk management.

Risk Management

Crop insurance companies and the insureds identify, analyze, assess, control, minimize, and avoid unacceptable risks. Risk management is the use of risk assumption, risk avoidance, risk retention, risk transfer, or any other strategy (or combination of strategies) in proper management of future events (Njegomir, Tepavac, & Bikicki, 2016). Insurance companies take such risks through due diligence of underwriters before attaching an insurance policy (Xiao, Wang, & Porth, 2017). As a risk management strategy, managers of insurance companies reinvest collected policy premiums into an interest-bearing avenue. Interest income from reinvestments increases a financial weight and serve as a cushion against potential high claims and losses from the insureds.

Revenue or interest income from reinvestment plus premiums in reserve is not enough to cover total crop insurance losses, especially in instances of catastrophes. Consequently, managers of crop insurance companies reinsure their businesses (Chi & Meng, 2014). Reinsurance is another risk management strategy. The exposure of shareholders investment increases whenever managers choose not to make smart reinvestment of capital and collected premium and fail to reinsure the company (Di Falco & Bulte, 2013). To this end, only sound underwriting strategies may increase shareholders' return through underwriting gains. The management of underwriting risk for the purpose of producing a gain involves an expansion into other insurance types and industry, coinsuring, and reinsuring.

Underwriting

Underwriting is a process of protecting the insurer's capacity by minimizing adverse selections (Just & Calvin, 1999). Underwriting entails receiving payment for the willingness to cover a potential contingent risk. Insurance companies bear the financial risk inherent in an insurance contract (Babcock, 2015). This process is fundamental to the success of the insurance companies. The underwriters of an insurance company are the determinants of the success of this process. The underwriters keenly scale the risks that the insurance company could potentially consume and decide to offer a firm, partial, or all-or-none commitment to the potential insured. However, underwriting risk reflects the adequacy of insurers underwriting performance and that there is a definite and significant relation between underwriting risk and return on assets (Brick & Visser, 2015). Underwriting profitability of life insurers influences positively and significantly the age of the company, size, volume of capital, and leverage. The underwriting process is a fundamental step as a strategy that determine whether a company will have a gain or a loss.

Underwriting gain. Underwriting gain is the profit an insurance company generates after paying all claims (Bawa & Bhagat, 2015). Underwriting gain is the residue from the premiums the company collects from farmers together with its investment income and the amount the company spends for claims or indemnities on its policies (Livingston et al., 2015). An underwriting profit is also called an underwriting gain. Insurer's underwriting activity creates a profit over a period (Livingston et al., 2015). Often, a combined effort from the actuarial and pricing groups ensure the

attainment of a modest return (Annan, Tack, Harri, & Coble, 2014). Thus, managers strive for an underwriting income, which is the difference between premiums collected on insurance policies by the insurer and expenses incurred and paid claims. Successful strategies produce underwriting gain while underwriting loss is indicative of an upcoming financial distress (Raines et al., 2015).

Underwriting losses. Underwriting loss is a loss by an insurance company on its insurance activities (Miao, Hennessy, & Feng, 2016). Insurance carries a risk that there is a probability of occurrence of a variable such as the natural disasters (Lyu & Barre, 2017). The cost of natural disasters in the farming industry is in the billions bracket, and insurance companies must pay for such losses per policy contracts (Sherrick, Schnitkey, & Woodward, 2014). An underwriting loss is recognized when there is an actual occurrence, and the real value of the incident can be estimated or expended.

The probability of an occurrence of a natural disaster varies. Disaster risk reduction measures are necessary to reduce, prevent, and mitigate the significant impact of disasters in the agriculture sector (Surminski & Oramas-Dorta, 2014). Farmers seek this protection and managers of insurance companies must ensure that their companies are equipped to reimburse farmers based on insured crop losses.

Extant Underwriting Losses Strategies. Asset-size, underwriting activity, and strategic choices are the determinants of the insurance firms' performance in relations its return on assets (ROA) (Moro & Anderloni, 2014). The asset size of a new insurance company is often its most concern. Many times, the underwriting activity coupled with personnel experience is mostly limited (Moro & Anderloni, 2014). Such a limitation

leaves the only survival option to be the strategic choices an organization chooses to undertake. The known strategic decision are the instances where insurance providers consider conventionally used underwriting factors like cognition, BMI, and place of birth within individual insurance coverages (Fong, 2015). Likewise, managers of crop insurance companies must consider factors, such as soil nutrients, farmers experience, type of crop, and even climate condition. The financial benefit of the underwriting process can result in more premium over losses on the book of business and that managers in a nonfinancial underwriting process can produce sound pricing, product mix, retention, and success ratio (Ye, Liu, Wang, Wang, M. & Shi, 2017). Good underwriting may protect the insurer's capacity by minimizing adverse selections.

Evidential Management's Mitigation of Underwriting Losses

Mitigation through price. Underwriting gain, like profit, is a realized financial benefit when the amount of revenue gained from a business activity exceeds the expenses - costs and taxes - needed to sustain an operation like insurance (Fong, 2015). A financial gain in the insurance business is achieved through the setting of actuarially sound rates, which, in turn, depends on the ability to forecast payments on insured units (indemnities) (Annan et al., 2014). Actuarial rates are a consideration of a variable, such as the willingness to pay for crop insurance against extreme weather events like flood and drought (Arshad et al., 2016). The desire of producers to acquire a protection from severe weather and natural events may determine the total revenue for an insurance company. Managers have therefore sought to establish whether crop insurance is an acceptable tool against extreme weather events and its related casualties.

Shareholders are mostly interested in increasing return on their investment. One way to improve a profit as it relates to crop insurance is to reinvest premium collected (Brick & Visser, 2015; Gu et al., 2014). The other is to increase the price of a product or a service (Borychowski & Czyżewski, 2015). In the early years of crop insurance, managers were able to raise prices of insurance premium in moderation. Premium raise increase revenue and eventually impacting shareholders return positively. This approach is useful particularly in situations where a consumer is consuming a better service and a better product. A classic example relates to the history of computers wherein the computers of the 21st century is much better in comparison with those that were produced towards the end of the 20th century. In this case, computer users are now more willing to pay a higher price because the computers are of good quality, more efficient, more capabilities, and can store very large amounts of data. Companies like Apple, Hewlett Packard, and IBM are successful because they have designed computers with extensive capabilities. Accordingly, these companies raised prices and skyrocketed their revenues (Farrin & Miranda, 2015).

Premium raise for crop insurance companies can increase revenue. However, an insurance company can only raise premium so high and still encounter an underwriting loss (Guiso, 2012). This is because calamities in the farming industry are highly unpredictable (Colson et al., 2014). A company may raise premium as high as possible or, for example, up to a level of expected losses but when a total loss hits a farm, an insurance company will be at an underwriting loss point. Crop insurance companies may raise premium through some form of justification by availing a variety of service

opportunities and types of insurance. For instance, while reflecting the computer industry and its product capabilities, crop insurance companies provide a range of coverage for farmers. Policies sold include yield-based coverage, MPCI, group risk plan (GRP), revenue insurance plan, crop revenue coverage, revenue assurance, group revenue assurance policy, and income protection (Barnett, 2014; Duncan & Myers, 2000). Farmers get many options, and consequently, crop insurance companies tend to increase the premium price. Even with these many options, managers of crop insurance companies cannot raise premium prices high enough to cover for possible future losses. Added to this, managers of insurance companies must deal with farmers who might be risk preferring rather than risk-averse. Expressed differently, some farmers do not see the need for crop insurance; instead, they rather take on the risk of inadequate rainfall or drought than insure their crops (Choudhury et al., 2015). Farmers need insurance education. Some farmers may choose not to irrigate the crops even though there is a risk of inadequate rainfall or drought.

Mitigation through education. Education of farmers is probably a cost that managers of crop insurance companies must consume in order to secure an interest of a farmer (Surls et al., 2015). If an insurance company manages to sell a crop insurance policy to an unwilling farmer, its first tactic is to enlist the farmer to a multi-year policy. A multi-year policy ensures some level of protection from the farmer switching to other insurance companies (Osipenko, Shen, & Odening, 2015). Until such point, insurance companies must invest in more advertising in the necessity of insurance to farmers who are reluctant to insure their crops. Some farmers choose to self-insure while others, as

seen in some areas in the U.S. and Africa, do not realize a need to insure their farms. Farmers in those areas have trivial records of losses from natural causes such as drought, excessive moisture, hail, wind, frost, insects, and disease. Nevertheless, price fluctuation could affect farm revenue and income (Afroz et al., 2017). Managers of crop insurance companies must highlight these fluctuation incidences and loopholes through advertising for farmers to have any interest away from personal self-insure and self-protection. Education of farmers and ranchers includes the full range of strategies to manage the risks inherent in agriculture, particularly in production, price, finances, legal issues, and human resource management. Transmission of these strategies and risk management is necessitated through aggressive advertising. Advertising is a substantial cost to tolerate, especially for new insurance companies. These necessary costs together with insurance coverage losses and claims spiral downwards to underwriting losses for insurance companies (Narayanan, 2014).

Farmers who choose not to insure their crops and livestock may monetarily affect a crop insurance company negatively (Arshad, et al., 2016). In the years that natural calamities were not reported, the farmers who were without insurance had a bragging advantage because they did not pay for insurance premiums. The farmers who pay insurance premiums may be influenced to drop insurance coverages in the future thus affecting crop insurance company revenues and projection. Managers of crop insurance companies use a peculiar and wise strategy of allocating or distributing premium from areas that are less prone to natural disasters to the risk areas of the firm. Premium from regions that are less prone to natural disasters is real revenue for the business. Revenue

from less loss-prone areas is used to offset losses with calamity striven areas. It is more advantageous for insurance companies to underwrite policies in various parts of a country rather than focus on one state (Zhang & Nielson, 2012). Thus, young and upcoming insurance companies underwriting in only one state have these two disadvantages of possibly losing customers because of the influence from uninsured farmers and a significant loss claim because to a calamity in the only state the companies underwrite. However, farmers without crop insurance need to know the restrictions surrounding loan applications and the need for insurance to secure a loan for farming and other necessities.

A startup, experienced farmer, or rancher will one day need to borrow money to start, expand, sustain, or make changes to the business. Farm Service Agency (FSA) is an arm of the U.S. Department of Agriculture (USDA). FSA offers farmers loans or loan guarantees through its Farm Loan Programs whenever a farmer or rancher is unable to obtain credit elsewhere to start, purchase, sustain, or expand a family farm (Annan et al., 2014). FSA loans are temporary, and once a farmer graduates to commercial credit, FSA's mission of providing temporary, supervised credit is complete. Farmer loan borrowing and maintenance of loan security requires keeping crop and livestock safe, healthy, and well-fed, maintaining farm machinery, and insuring the farm alongside paying the premium when due (Farrin & Miranda, 2015). These precautions serve as collateral for the loan. Therefore, farmers are tangled in these requirements, including a need for insurance. A requirement for insurance whenever a farmer needs a loan is good for insurance companies because the more the policies they sell, the higher the revenue.

In contrast to this requirement and with farmers doing well, a question lingers upon farmers' needs for loans.

There has been some evidence of robust in farming in the United States (Narayanan, 2014). There is an argument that the farm crisis in the 1980s left a profound mark on the Midwest as the worst downturn in farming since the depression. Since then, farmer balance sheets have been reporting increase in equities with some small wave of difficulties. Moreover, interest rates are still low, and demand for farm produce remains steady even as overall growth has diminished (Akter, Krupnik, & Khanam, 2017). As farmers find farming profitable to some comfortable notch, they reinvest revenue surplus or save it up for downturns during heavy loss seasons. As this positive trend continues, one implication is that some farmers will not depend on loans that are intertwined with a need for insurance. Farmer independence reduces crop insurance company's revenue and subsequently impacts negatively on its gains.

Mitigation through globalization. Farmers in developing countries need capital to acquire efficient farm machinery, advanced farming practice and education, and access to high-quality crop seeds, better fertilizers, pesticides, insecticides among many others. The peasant farmers, for instance, in some parts of east and central Africa, the Middle East, and South America need insurance as coverage over prices and revenues (Bawa & Bhagat, 2015). But one of the financial struggles that are evident even in India and rural China is that these farmers need loans for insurance coverage and to pay for premiums (Kunreuther & Lyster, 2017). The financial struggles by farmers in the richest rainforest of Central Africa limits farm capabilities. Some countries in those regions import farm

produce because local farmers cannot produce (Borychowski & Czyżewski, 2015). Through globalization, managers of crop insurance companies may bring business benefits to these areas, but international investments are costly.

International investment is one way to spread risk and gain access to bigger and better markets. The advancement in technology has enhanced international investments (Farrin & Miranda, 2015; Stuart, Schewe, & McDermott, 2014). Also, there is a unique culture rising internationally in which a company in Japan may adopt an international culture and be successful in America or a Chinese construction company building roads in Eritrea and Ethiopia (Borychowski & Czyżewski, 2015). Likewise, crop insurance companies may distribute risks by securing markets in other developing countries that are in dire need of insuring their crops. Through globalization, insurance companies may successfully form unions, mergers, or even become subsidiaries strategically to swiftly spread risks associated with crop insurance indemnities and thereby mitigate underwriting losses.

Globalization has some disadvantages that managers of crop insurance companies must note. Managers of young insurance companies must understand that global enterprises face major competitions (Glauber, 2016). Developed countries may potentially stifle the development of undeveloped and under-developed nations. Managers of insurance companies in underdeveloped nations must be aware of the pressures that developed countries levied on others (Ye et al., 2017). Further, economic depression in one country can trigger adverse reactions across the globe. A novice company may not be prepared for financial distress and worse, corruption and politics of

other nations. Therefore, an underwriting loss mitigation strategy by spreading risk or investing globally might be beneficial and advantageous, but it demands an excellent understanding of the strategy and insurance needs in any region of interest (Brickley, Smith, Zimmerman, & Willett, 2016). Also, it is imperative in a globalization strategy to understand politics and political stability of a country(s); a predicament which might overwhelm a crop insurance company.

Leaders of stable economies relay special attention to the agricultural sector. Government officials of developed economies tend to prioritize agricultural to educate and reinsure crop insurance companies (Krakivskiy, 2014). For example, the United States government gives a particular attention, funding, and support to farmers and crop insurance companies whereas this temperament is lacking in Ukraine or India (Krakivskiy, 2014; Narayanan, 2014). If the developing nations must choose between health insurance and crop insurance, health insurance takes preference over farm insurance (Durham, Brolan, & Mukandi, 2014). A preference for insurance on human health renders farmers with an exposure. The exposure is related to the shifting price and revenue making it difficult for managers to measure predictions in comparison to the actuals. After years of financial struggles culminating from these sideline priorities, farmers tend to cut back on the proportions of active farms. This impacts production and insurance coverages.

There is another major issue concerning insurance in lands and farms that are owned by tribes. Tribal farms are a collective property of the community and losses from natural calamities are considered a community loss (Di Falco & Bulte, 2013). Many

farmers in tribal regions are less likely to insure against price and revenue fluctuations. In Ethiopia and many parts of the developing countries, locals use self-protection and risk sharing to reduce exposure to risk. Through Kinship linkages, adoption of risk mitigation technologies buffers the impact of weather shocks. Di Falco and Bulte (2013) suggested that kinship represents a primary principle of social organization in Sub-Saharan Africa and that blood relations promote altruism, which tends to enrich commitment problems. Kingship networks have a sharing obligation, which ultimately reduces idiosyncratic risk and possibility of free-riding behavior. Traditional sharing norms in kinship networks decrease incentives to adopt protective measures such as insurance against weather shocks. The adverse effect of the network on adoption of risk-mitigating measures disappears once farmers focus on credit villages (Lyu & Barre, 2017).

Mitigation through government involvement. The situation of collective property and community losses is worse where governments of those regions do not pay attention to the well-being of the farmers. Often, farmers do enough farming only to feed their families (Kunreuther & Lyster, 2017). It will take immense efforts by managers of insurance companies to influence reluctant and uninterested farmers. The initiative is almost valueless where the managers of insurance companies not only have to deal with unenthusiastic farmers but also have different cultures (Narayanan, 2014). Surminski and Oramas-Dorta (2014) suggested that where farmers' culture is different and there is no motivation for insurance coverages, insurance penetration is almost impossible. Penetration is impossible particularly in tribal lands and farms with farmers of a foreign culture. Government involvement in this scenario plays a critical role.

The need for government involvement in agriculture is critical. Governments play a role to ensure that agriculture insurance programs meet the requirements of small-scale farmers while supporting the sustainability of insurance and financial providers (Coble & Barnett, 2013). Government presence ensures information asymmetries for insurance companies that lack information on the target market. Governments' involvement also includes the guarantees of education on information asymmetries for potential policyholders who lack an understanding of insurance. Ex-ante government farm insurance can deter ex-post "disaster relief" and improve production incentives by countering the moral hazard that otherwise prevails. Innes (2003) observed that absent ex-ante government policy, ex-post relief takes the form of revenue insurance, which prompts excessive entry into farm production and under-production by operating farmers. Ex-ante government policy can raise economic and political welfare by buying out low productive farmers and offering prosperous farmers a combination of revenue insurance, price supports, and a program participation fee. Thus, through government involvement, managers of insurance companies may avoid infrastructure costs needed for high quality and reliable market data. Also, governments partake in insurance activities where there is limited access of insurers with reinsurance capacity (Adams et al., 2017).

Government involvement in farm insurance includes a role on the demand-side, for instance, by purchasing agriculture insurance to cover government contingent fiscal liability to natural disasters such as drought and hail (Osipenko et al., 2015). Insurance companies need government presence because of its power on investments in data, increasing outreach to potential policyholders, investment in reinsurance capacity,

providing technical expertise in product development and creating an enabling legal and regulatory environment (Annan et al., 2014). Governments can promote the development of agriculture insurance at a micro level by requiring agricultural loans to be bundled with insurance. States can also participate at a macro level by recognizing insurance as a valid internal risk management tool for financial institutions (Farrin & Miranda, 2015). Surminski and Oramas-Dorta (2014) suggested that a recognition of insurance as a legitimate internal risk management tool for financial institutions is what developing nations lack. Recognition doubled with a financial backing is essential for crop insurance success. Therefore, governments can play a role in managing the excessive costs of developing actuarial and specialist expertise. These costs are some of the ingredients that increase underwriting losses and a management problem for managers of crop insurance companies.

Mitigation through sound leadership. Consumer protection entails government effort to intervene in the introduction of product or index approval processes (Moreno et al., 2017). Governments provide protection by mandating insurers to disclose specific information about the historical expenses information and correlation of loss payouts to potential policyholders setting and enforcing insurance product quality standards, and banning specific products (Njegomir et al., 2016). Also, the United States Government, through FCIC, monitors the amount of the book of business for insurers. A government can authorize total policies to insure or reinsure based on the insurer approved book of business. The government may accept or reject the application of an eligible producer based on the availability of such amount of insurance or if Federal Legislation or FCIC

has limits on the amount of insurance authorized to be insured or reinsured (Annan et al., 2014). Government regulators are also involved with insurers in product design processes at an early stage, both to ensure the legality of the product under development and to account for consumer protection considerations.

Agricultural insurance programs require governments to play a crucial leadership role when responding to market inefficiencies (Woodard, 2016). Developing countries need this leadership role (Northouse, 2016). Nonetheless, government involvement other than the efforts of reinsurance has yielded no positive outcome for managers of crop insurance companies in their efforts to mitigate net underwriting losses. To mitigate net underwriting losses, managers of crop insurance companies, particularly in the U.S. and in Europe, have a dependency on government reinsurance (Gu et al., 2014).

The U.S. government is a champion and a mantel bearer of reinsurance around the world (ERS, 2016). There is a direct link between the success of crop insurance companies and the reinsurance help from the government of the United States (Chi & Meng, 2014). The government has entered into a public-private partnership with insurance companies to offer affordable and cost-effective insurance coverage to farmers. The assistance from the government comes in the form of subsidies. Some foreign governmental subsidization does not take the form of direct premium subsidies (Gu et al., 2014; Zhou, Wang, Zhang, & Ke, 2015). Foreign governments collect all data used in the crop insurance scheme and provide it to accredited insurance companies or provide a social layer of reinsurance to all farmers at no additional cost. The social layer from government protects against infrequent catastrophic losses when the insurance is

exhausted through commercial coverage. The assurance of the social layer suggests that managers of crop insurance find the partnership with the government as cushioning and a mitigating strategy and therefore appear as a self-insurance and entitlement.

Public-private partnerships are prevalent in underwriting and delivering agricultural insurance. In such alliances, agricultural insurance is the responsibility of private insurers but with some government collaboration or assistance (Brandes et al., 2016). Public-private partnerships are typically the structure for delivering MPCI, which is significantly subsidized by the government. Government interventions take many forms, but the dominant financial mechanism is the premium subsidy. Still, administrative subsidy, direct provision of reinsurance, or subsidizing claims payment can provide financial support. After considering all government costs, farmers typically pay between about half of the costs of insurance provision. Upfront premium subsidies are one-third of original gross premiums while the total public cost of agricultural insurance is over half the premium volume. The public cost of all forms of agricultural insurance subsidies typically represents 50% to 200% of the premiums that farmers of some high-income countries pay, for example, U.S.A., Spain, and Italy (Cole & Xiong, 2015).

Mitigation through reinsurance. In the United States, the Federal Agriculture Improvement and Reform Act of 1996 allowed governments' provision of subsidy and reinsurance on eligible crop insurance contracts and insurance sale by the private insurance companies (ERS, 2016). The government subsidy payments and reinsurance are a cooperative financial assistance agreement between USDA's FCIC and the

insurance company to deliver eligible crop insurance contracts under the authority of the Act (Glauber, 2016). The government reinsurance is a vital help to the insurance companies and farmers. The presence of the government and its financial assistance is critical in the event there is a natural disaster.

The management of natural disasters involves risk mitigation and expansion into other insurance types and industry, coinsuring, and reinsuring (Stuart et al., 2014). Reinsurance can be in the form of facultative-risk, individual, one off, or a treaty portfolio. Government reinsurance to the insurance companies helps managers to overcome underwriting losses. There is an assurance to Approved Insurance Providers (AIP) upon signing a the SRA with the government. The SRA mandates that the party in the contract (insurance company) shall have the financial and operational resources, organization, experience, internal controls, and technical skills to meet the requirements, including addressing reasonable risks, associated with the Agreement (Coble & Barnett, 2013). The government's responsibility with the SRA contract is to provide reinsurance, administration and operation subsidy, catastrophic risk protection (CAT), and risk subsidy.

The government's arrangement as a partnership with crop insurance companies to deliver crop insurance and assistance to American farmers has been ongoing for decades. The insurance companies perform like messengers for the government, wherein, after signing the SRA, insurance companies have the task to contact as many farmers as allowed by the contract, sell policies, collect the premium, and settle the losses (Annan & Schlenker, 2015). The government receives all premium and when the insurance agents

of the company determines that there is a loss, the government pays the insured for such losses. The government reimburses the insurance company with the administrative and operating expenses. Further, government assistance to farmers includes a subsidization of a portion of premium and consumption of losses for catastrophic losses. Insurance companies are required to designate the type of policy issued whether it is commercial or assigned risk. This designation will determine the government's portion of the underwriting gain or loss (Miao et al., 2016).

Managers of the crop insurance companies will need to make sound judgments pertaining the percentage of underwriting gain or loss acceptable under a reinsurance agreement (Glauber, 2016). One of the primary goals of entering into a reinsurance agreement is to lower the risk of underwriting losses, which can adversely affect the investment of the shareholders (Miao et al., 2016). Insurance companies assume the level of underwriting gain or loss depending on the policies issued and the States of participation. An insurance company may choose to designate a policy as a commercial fund. Commercial funds are riskier and hence the potential for better return should there be a gain. The opposite is true if insurance companies report losses. An insurance company may choose to designate a policy as an assigned risk fund. The retention percentage of premium and associated ultimate net losses of an assigned risk fund is low (Glauber, 2016). Therefore, an insurance company may not net good underwriting gain or loss from such a fund. However, assigned risk fund is much safer because where there is a reinsurance agreement involved, the reinsurer carries more weight of either loss or gain (Chi & Meng, 2014).

Reinsurance is a way to mitigate underwriting losses for most managers of insurance companies in the United States (Gu et al., 2014). The choice for reinsurance suggests a difficulty facing insurance companies. If insurance managers knew how to mitigate underwriting losses, then the shared gains with a reinsuring entity could all be for one insurance company.

Mitigation through internal control. Managers have long theorized that asset-size, underwriting activity, and strategic choices are the determinants of the insurance firms' performance regarding return on assets (ROA) (Zhang & Nielson, 2012). This argument posits that the larger the asset-size and underwriting activity, the better (Moro & Anderloni, 2014). However, human resource and the software resource (technical know-how) constricts this argument. Also, the larger an underwriting activity, the more the need for control. Management control system is a responsibility and a management issue for leaders. Lack of control within the system may affect the managerial accounting system, which affects underwriting losses (Otley, 2016). Insurers need accounting systems, which can operate more efficiently and effectively and provide excellent control internal or external to the organization. It is advantageous to have a larger asset size, underwriting activity, and strategic choices. Underwriting strategies may include the acquisition of new businesses to grow market share and managers need a system that can handle the acquisition in a timely and efficient manner with minimal disruption to current processes (Zhang & Nielson, 2012).

There are private sector and government analyses available for insurance companies to utilize before embarking on an investment. Strategic managers of insurance

companies encompass knowledge seeking with analysis, such as those that show that risks associated with one agricultural commodity over the other. For example, there are available records that show that highly contagious animal diseases, such as classical swine fever, and foot and mouth disease are rampant in one area over others. Overlooking those can have significant economic consequences as evidenced with the outbreak of Classical Swine Fever in the Netherlands in 1997/1998 resulting in total financial losses estimated at U.S. $2.3 billion (Pai, Boyd, & Porth, 2015). Managers of crop and livestock insurance companies who ignored historical trends exposed their companies. The managerial exposure caused the companies massive underwriting losses in Netherlands.

Insurance managers make the educated decision based on extensive analysis of historical data. Out of the historical data, managers make predictions for the future (Brandes et al., 2016). Historical insurance data, for example, from the Department of Agriculture and other sources, may provide enough information to managers of an insurance company with their expedition to new markets. In another instant, an analysis that produces positive relationship with financial markets' dimension is essential to know before deciding. Also, an inverse relation with the rate of insurance market growth resulting from the increase in competition in the insurance industry affects a company's return on equity (ROE) (Moro & Anderloni, 2014). Crop insurance companies may mirror motor vehicles insurance companies with the credit scoring prediction (Golden, Brockett, Ai, & Kellison, 2016). For car insurance, underwriters determined that credit history data can predict insurance risk and losses. Management may make accurate prediction through credit score and incur losses where there is an overlap with existing

underwriting variables. Therefore, crop insurance managers have been exhausting these and other analytical means extensively. However, underwriting loss problem lingers on suggesting that managers still lack effective strategies.

Mitigation through cost cuts. Past studies provide means to cut costs, construct strategic successful choices, and discover and implement means and ways to underwriting gains. To cut costs, there is a need for efficient collaboration and data management if any company is to survive (Brandes et al., 2016; Helgoson & Kalhori, 2012). A framework of knowledge integration is vital for insurance companies undergoing underwriting difficulties. Cost cuts start from the planning stage and imply that pre-process, in-process, and post-process steps are crucial for sharing knowledge in any industry. In addition, major barriers to the use of insurance is the perceived cost, which is a function of both the amount of coverage and the farm's annual gross sales (Edwards et al., 2016).

Managers are aware that cost cuts right from the planning stage are central to the survival of a strategy and in mitigating losses (Northouse, 2016). Literally, losses are costs that have exceeded revenue. Losses arise from excess and uncontrolled costs. Management of transaction costs and other challenges are key factors in the protection from risk and underwriting losses (Choudhury et al., 2015). Transaction costs are expenses incurred when buying or selling an insurance policy and claim. The insurance agent's commission, loss adjusters' costs, appraisal fees, communication, and government fees can add up and diminish firms' operational income. These costs are necessary, but managers of insurance companies may not know how to reduce them, and together with

indemnity payments, it can easily overcome the gains of an organization thereby negatively changing the bottom line number of a firm's income statement (Edwards et al., 2016).

The management model that the administrators of an insurance company chooses mostly guide the firms' inroads to cost cuts, strategic choices, and the means to underwriting gains (Northouse, 2016). The model that management chooses without creating a room for adjustment or switchback might be one cause to the destruction of an organization if not a path to underwriting loss. Models such as the extreme value approach for modeling operational risk losses depends on covariates. Managers will need to understand the parameters of the frequency and severity distributions of losses which may depend on covariates and provide a flexible statistical methodology for the modeling of extreme losses within the banking and insurance industries (Chavez-Demoulin, Embrechts, & Hofert, 2016). Distribution of losses correlate with the diversification model. In the Midwestern part of the U.S., farmlands operated at a loss even in economically favorable years due to economic rationale for management changes in those areas. Rather, managers could use a computational framework that integrates disparate but publicly available data to diversify within-field variability of cropland profitability (Brandes et al., 2016). Managers of insurance companies put into consideration the age of the company, size, volume of capital, and leverage for a speculation of the adequacy of insurers underwriting size and performance. A regression model proves that there is a definite and significant relationship between underwriting risk and ROA (Bawa & Bhagat, 2015).

Mitigation through diversification. The strategy of an insurance company might just be to diversify risk and share a portion of profits. In this case, managers of the insurance company will not necessarily have any interest in other strategies of mitigating underwriting losses since the loss will be shared. Such a strategy implies an inclination towards reinsurance. An optimal reinsurance policy is to cede two adjacent layers through the distribution of the upper layer to the first reinsurer. Under the optimal reinsurance model, an insurer can optimize loss reduction by ceding to two adjacent layers (Chi & Meng, 2014). An insurer can pay less cost for ceding an amount of loss by formulating a competitive reinsurance portfolio. Reinsurance is an important risk management tool for insurance companies. A mixture and distribution risk capture the heavy tail property of the loss data better than single distribution models (Porth, Zhu, & Seng Tan, 2014). Hence, a strategy to reinsure is to distribute potential losses, not gains, in the crop insurance industry.

Mitigation through fraud reduction. Some downfalls with crop insurance are partly related to fraud. Fraud distraction, obstruction, prevention, detection, and even the aftermath cost crop insurance massively. Fraud has an impact not only on the insurers but their customers (Tonenciuc, 2015). Since there is no fraud without casualties, insurers have been prioritizing discouragement and reduction of fraud in insurance. These efforts are costly and are expensive to carry for insurance companies that are already struggling with underwriting losses. Data mining is a detection and prevention effort (Rejesus, Little, & Lovell, 2005). Data mining, a non-trivial extraction of implicit, useful

information from data in large databases, can extract knowledge that is new, not obvious, and must be useable for tackling fraud.

Managers of insurance companies must onboard professionals who are experts in data mining. These experts are another extra cost to the crop insurance companies, which worsens the underwriting loss situation. To avoid these extra costs, managers of insurance companies may need to adjust its auditing strategy (Muller et al., 2016). One of the auditing strategies is training accountants within the organization with auditing techniques. A model framework based on a costly state verification setting in which, while policyholders observe the amount of loss privately, the insurance company can decide to audit incoming claims at some cost (Muller et al., 2016). Managers who chose this model will have to consider the cost per audit in comparison with the relative amount of fraud per instance. Tonenciuc (2015) suggested that fraud detection and prevention may be costly to a crop insurance company but might also save from fraudulent transactions particularly from claim filings and funding.

Corruption is an epidemic in most third world economies (Tormo-Carbó, Seguí-Mas, & Oltra, 2016). Crop insurance companies not only have to be concerned with the activities of most personnel ranging from agents to loss adjusters but also with government officials who might be unethical and dishonest. Such is a dilemma for insurance companies although trust is a key determinant of any financial transaction. Exchanges in insurance markets demand trust because of the uniqueness of its financial transaction where a current payment (the premium) is exchanged for a promise of a future, contingent payment – the indemnity due when the casualty occurs (Guiso, 2012).

Government subsidies, financial, and loan assistance are not channeled down appropriately to the farmers in need (Tonenciuc, 2015). Farmers and experts have less trust of governmental help due to numerous loopholes and they are skeptical it will help those who need it most. Some insurance aid has a pattern in which large-scale farmers exploit agricultural packages that are nominally designed in the name of small-scale farmers.

Summary and Transition

The problem of crop insurance strategies to mitigate net underwriting losses with a focus on providing crop insurance management with information to better understand underwriting loss strategies that might help the crop insurance companies improve their competitiveness in the industry is presented in Section 1. The purpose statement and research question in section 1 are based on the study problem. The conceptual framework in section 1 is based on Hiebert's self-protection theory. The literature review includes information on net underwriting strategies that currently help sustain the business of crop insurance companies. The literature review further includes details regarding the theoretical basis of underwriting dilemmas that shape the conceptual framework to explore the strategic aspects of the net underwriting strategies for crop insurance companies. Section 1 ends with a summary of the section.

Section 2 will include the role of the researcher, identify the participants and the sample process, data collection, data instruments, organization, analysis, and validation of the study. Section 3, will include the results of this study, implications for social

change based on the study results, recommendations and further research of crop insurance underwriting losses.

Section 2: The Project

In Section 2, I describe my role as the researcher, the qualitative research method, and the single case study design. Additionally, I outline my selection of participants. Section 2 also includes discussion of the protection of participants' confidentiality, ethical research, validity and reliability, collection of data, data analysis, and data organization.

Purpose Statement

The purpose of this qualitative single case study was to explore successful strategies that managers of a crop insurance company use to mitigate net underwriting losses. The study population consisted of managers of a crop insurance company in Midwestern United States who have successful strategies for mitigating net underwriting losses. The results of this study may provide crop insurance management with information and a better understanding of underwriting loss strategies that might help them improve their competitiveness in the industry. The results of this study may contribute to positive social change by lowering insurance premiums to the farm community and potentially increasing supplemental income, encourage more farming, prosperity in farming, and reduce foreign food imports.

Role of the Researcher

My role was to conduct the research and serve as the primary data collection instrument in the Midwestern United States. Devotta et al. (2016) suggested that the role of a researcher is to provide a methodical interpretation of data from archival data and interviews. Merriam and Tisdell (2015) specified that researchers are instruments for

collecting data. As an accountant in the field of crop insurance, I was familiar with net underwriting losses. Morse (2015) reported that communication and thoughtfulness provide individuals with a better understanding. For that reason, decorum was essential to ensure that the interpretation of data received proper analysis.

Researchers use the Belmont protocol to maintain compliance with ethical standards and to gain respect from participants by abiding by three principles (Fiske & Hauer, 2014). The three principles that apply to interviewing and interacting with humans are (a) justice, (b) beneficence, and (c) respect for persons (U.S. Department of Health & Human Services, 2016). I adhered to the ethical standards in this study by observing the Belmont protocol. In my role as a data collector, I communicated ethically and collected data in a trustworthy manner with participants to remove biases. I respected all participants and treated them independently, protected them from potential harm, remained ethical by ensuring their wellbeing through protection from harm, and acted justly and equally through my interaction.

Personal interpretation of research causes bias. The principal threat was my bias as a researcher (Ekeroma, Kenealy, Shulruf, & Hill, 2015). A researcher must use reliable facts to reduce bias (Koch, Niesz, & McCarthy, 2013). Organizing the research and validating the data is one way of mitigating bias. Chan, Fung, and Chien (2013) noted that researchers could mitigate bias through bracketing, which is the setting aside of all of the usual assumptions about a phenomenon. Jain, Sharma, and Jain (2015) indicated that random error is the variance of real value and study value that crosses over into the study to ensure validity. I limited bias and ensured the validity of the study by being open-

minded and becoming an investigator in addressing human differences (Bernard & Bernard, 2013). I recognized bias limitation because most researchers who conduct interviews and surveys carry bias relating to the research. The use of tools, such as good organization, data validation, transcript validation and review, reaching data saturation, bracketing, and open-mindedness as an interview protocol to all participants helped mitigate bias.

Participants

The participants in this study were the crop insurance managers who have used successful strategies to mitigate net underwriting losses. A single case study with multiple participants is appropriate for the qualitative method with a specific purpose relating to the research question (Cleary, Horsfall, & Hayter, 2014; Yin, 2014). The criteria for selecting the participants included managers of a crop insurance company operating in Midwestern United States who provided crop insurance services to American agricultural producers. The participants had successful strategies for mitigating net underwriting losses with delivering underwriting gains to the stakeholders of the company. Although no sample size ensures data saturation in a qualitative study (Yardley, Watts, Pearson, & Richardson, 2014), a study may have just two participants (Yin, 2014). I conducted multiple interviews with four managers to collect data. The participants met the criteria for participation in the study. I conducted semistructured interviews and followed up with member checking interviews until data remained unchanged. My interpretation of the data was based on the questions that the participants answered. The participants had an opportunity to add additional information.

For this exploratory case study, I selected crop insurance managers who had knowledge regarding underwriting and had strategies to mitigate underwriting losses. I emailed invitations describing the intent of the study to prospective managers of a crop insurance company operating in Midwestern United States. A copy of the invitation letter is in Appendix B. I obtained email contacts for these participants from their official company website and the listing on the National Association of Insurance Commission (NAIC). Chan et al. (2013) noted criterion for study participation was to ensure study participants had the knowledge and experience relevant to the purpose of the study. Such a selection encompasses the idea that gaining access to potential participants through relationships is essential to researchers (Merriam & Tisdell, 2015). Gaining access coupled with researcher's flexibility and a carefully thought-out plan to conduct research enriches trust and reliability of the findings (Depoy & Gitlin, 2015; Kidney & McDonald, 2014). To participate in this study, participants needed to be in the management of the crop insurance company. I contacted each prospective participant by email. Participants who did not meet the criteria did not receive further consideration.

Upon identifying the participants, the next step involved establishing a working relationship and obtaining a completed informed consent form. Bell (2013) stated that the qualitative researcher should conduct an in-depth study by building an appropriate relationship with participants. I explained the ethical boundaries to selected participants because establishing a working relationship with participants was crucial. Houghton, Casey, Shaw, and Murphy (2013) recommended that researchers use ethical guidelines to maintain relationships with participants through academic research integrity and

community partnerships. I maintained a consistent communication as a necessary form of ethical care, a protocol suggested by Eriksson and Kovalainen (2015. I upheld confidentiality by protecting the participants.

Research Method and Design

Research methodology and design are the foundations of reliability with the information produced. Further, it is important to base the central research question as a guide to determine the best method and design for research (Yin, 2014). A case study design involves multiple research data including interviews, archived documents, and observations which produce a more affluent and broader understanding of the research problem (Yin, 2014).

Research Method

Qualitative, quantitative, or mixed method research are three methods of investigation that researchers can choose from (Marshall & Rossman, 2016). For this study, I used the qualitative methodology. Qualitative methodology was appropriate for this study to explore a deep understanding of the phenomenon for mitigating underwriting losses through an interview process and observation of organizational documentation. An interpretive and naturalistic approach was crucial in understanding the phenomenon of underwriting losses, and the qualitative method, which is multimethod, was the best technique to the topic of study. In qualitative research, participants provide paramount lived and situational experiences that relate to the phenomenon (Simon & Goes, 2013). Advocacy and participatory worldview were the philosophical assumption of this study. A participative and advocacy worldview

qualitative research that included the researcher in the process was a better option because it centered on a change agenda and contributing collaboratively on the underwriting phenomenon.

Quantitative researchers hypothesize relationships among variables, use close-ended questions to collect data, and measure the results numerically and objectively. Although researchers use quantitative methods to contribute to the fields of study, the quantitative approach has limitations involving the researchers' inferences and assumptions. The close-ended questions in a quantitative inquiry limit the ability to gain insights into a problem (Yilmaz, 2013). The quantitative method reduces the participant's ideas to numbers and variables, conceivably eliminating an exhaustive exploration and analysis of the phenomenon.

The mixed method approach is a procedural paradigm that is based on qualitative and quantitative vantage points, data collection, analysis, and extrapolation procedures to report the investigator's research question (Barnham, 2015). The numeric component in the mixed and quantitative methods of research rendered them inappropriate for this study.

To understand the nature of a phenomenon and reveal the essence of lived human experiences, qualitative research method was necessary. My intent in this study was to find a new perspective into the phenomenon and this required an openness and thoroughness in data collection. An exploration was not possible wherein the method of research was to be concise, objective, and narrow as is the case with a quantitative method.

Research Design

I used the case study design in this study. Researchers use case study design to explore modern-day phenomena rather than historic events (Wahyuni, 2012). Yin (2014) argued that case studies are mostly used to document and analyze processes. Case study research is a reasonable approach to investigating contemporary phenomena and researchers use it in real life with the subjective richness of individuals reciting their experiences in a context.

The ethnographic design is a strategy applied to study a group of people in a natural setting over long periods by gathering data through interviews and observations (Wahyuni, 2012). Ethnography was not appropriate for this study because it was not feasible to examine a cultural group due to time restrictions. Ethnographic design, which demands a longer period of interviews and observation did not fit into of the timeframe of completion of this study.

A researcher in narrative research seeks to obtain extensive information about participants and develop a biography or tell life stories (Todhunter, 2016). The phenomenological approach entails critical reflection of experiences designed to reveal the characteristics of that experience (Moustakas, 1994). Phenomenological design is a critical reflection on cognizant experience, rather than subliminal motivation (Chan et al., 2013). Cognizant experience implies participant awareness or knowledge whereas subliminal motivation is mental thought process – that which lacks lived experience. Phenomenological design is designed to uncover lived experience (Chan et al., 2013).

The phenomenological design was not appropriate for this study because my goal was not to seek information concerning lived experiences.

The availability of candidates meeting the criteria determined the sample size for interviews. The research problem, purpose, and admissibility criteria for the participants strongly influenced my selection of the participants (Leedy & Ormrod, 2013). Participation criteria included crop insurance managers who had experience in underwriting, had been in management a minimum 10 years and were over 18 years of age. The interviews continued until data collection reached saturation. Data saturation is a point where the continued collection of evidence provides no additional information (Jensen, Christy, Gettings, & Lareau, 2013). I obtained data saturation by comparing primary patterns and themes that arose from the research until there were no new patterns or themes. I wrote and interpreted journal notes documented during the interviews and audio-recorded interviews. I interpreted interview data by writing concise summaries based on each interview question. Afterwards, I shared the summaries with participants during the member checking process. I used the member checking process to ensure that I accurately captured participants' thoughts and opinions. I conducted follow up member checking sessions until no new data was revealed.

Population and Sampling

Qualitative study participants must come from the target population (Harf et al., 2015). Researchers desire to investigate a population, which is the total group of people, things, or events (Manerikar & Manerikar, 2013). The crop insurance industry in the U.S. comprises the population of this study.

Population

The research problem, its purpose, and the admissibility criteria for participants influenced the selection of the participants (Leedy & Ormrod, 2013). The population for this study consisted of underwriting and strategic level managers of a company in Midwestern United States, operating in the crop insurance market. The company writes insurance policies in many states. Therefore, the company population represented the crop insurance industry in the United States. In a qualitative study on innovation diffusion, Choudrie and Culkin (2013) conducted eight one-on-one interviews. In 2014, Zuofa and Ochieng (2014) analyzed the failure of Nigerian infrastructure projects by interviewing eight participants. Aloysius (2013) used five international students to study the acuity of empowerment amongst international students at Putra University in Malaysia. The average number of participants interviewed in these studies were seven. These examples have the same context as my study, therefore, up to seven managers with insurance responsibilities at a crop insurance company were suitable for the study.

The selected population was those working in the crop insurance organization. This statistical population signified the entire data set of the general insurance population (Gravetter & Walnau, 2016). Managers who had held a leadership role and managed people for a minimum 10 years met the selection criteria. The selected managers were team leaders, directors, managers, or supervisors. This sample size adequately represented the population.

Sampling

I used purposeful sampling method as the procedure for this study. Scholars use purposeful sampling to understand an experience from the participants' viewpoint (Leedy & Ormrod, 2013). The purposeful sampling involve the selection of a sample to access research participants using the purpose of the study as the criteria and conducting an exhaustive exploration of rich sources of evidence (Zeldenryk, Gray, Gordon, Speare, & Hossain, 2014). Asst, O, and Asst (2014) argued that researchers use the purposeful sampling method to maximize diversity in a study. The sample for this study were four managers in the chosen crop insurance company in Midwestern United States. The purposeful selection onboarded four managers from one company with crop insurance experience, national business experience, industry knowledge, and real-world insurance underwriting experience. The selection criterion was appropriate because participants' direct involvement with crop insurance and underwriting provided them with the ability to answer the research questions and gave insights on managerial strategies for mitigating net underwriting losses.

The use of open-ended questions and follow up questions aided in achieving data saturation in the study. I assembled adequate data from participants to achieve data saturation. Marshall, Cardon, Poddar, and Fontenot (2013) argued that a sample size in qualitative studies can be much smaller compared to the sample size in a quantitative study and still achieve saturation. Coenen et al. (2012) observed that data saturation happens at the point that the collected data and analysis from two consecutive individual interviews divulge no additional information to the same question. Therefore, data

saturation occurs when participants provide similar answers to the same interview questions (Horter et al., 2014). In this study, I used open-ended and follow up questions to achieve data saturation.

The basis for the selection criteria for the four study participants was that the participants had to be managers at a U.S. insurance company in the Midwest and must have established or be a part of a successful underwriting strategy for the organization. Also, to qualify for this study, the participants had to be fulltime employees with the crop insurance firm.

The four individual interviews took place in a conference room setting and/or in their personal offices to ensure the comfort, safety, and privacy of participants. A conference room or personal office limited the probability of disruption. Kitchen (2013) mentioned that investigators select interview locations to provide a noiseless area with less distraction that is comfortable, safe, and a relaxed environment. Further, strategic interview locations were based on the safety of participants, ease of access to participants, and convenience of resources needed for the interview (Nwagwu & Igwe, 2015).

Ethical Research

To ensure that I conduct ethical research, I only begun the research upon approval of my proposal by the Walden's Institutional Review Board (IRB). Once IRB approved my proposal, I send an informed consent form to the potential participants who met the criteria of the study. I did not visit the study organization or interview its managers until I received permission from the organization official.

A consent form included the involvement of participants, the reason for the study, the length of the interviews, the risks of the research, participant benefit for participating, confidentiality, the costs involved, and the rights of the participant (Hardicre, 2014). The purpose of the consent form was to ensure that I adhered to the protocols of the Belmont Report and that the participants had a full understanding of their part in the study. Getz (2014) stressed that the consent form must be easily comprehensible, simple, and provide a discourse to the demographics of participants. I also informed potential participants of their option to withdraw from the study at any time and any point without consequences. Potential participants could withdraw from the study through email, phone, mail, or other communication methods. I only conducted interviews after IRB's approval and receipt of signed forms from the participants.

The ethical protection of the participants during the study did include obtaining a signed informed consent from participants to participate, ensuring that data did not include personal information, and altering participants' responses for better results. These protection measures were for ensuring that there was no harm to participants for participating in the research. Researchers must ensure no physical or psychological harm comes to participants (Leedy & Ormrod, 2013). Protection includes respect for participants and exposed population, beneficence, and justice (Durham et al., 2014).

My approach to the ethical protection of participants eased participants' anxiety of confidentiality. I did not use participant's personal identifying information or mention the actual name of the study organization. Also, I secured and stored study documents in

a personal locker at my home of residence for five years. I will destroy all documents, electronic and handwritten notes, after the mandatory 5-year timeframe.

Data Collection Instruments

Document analysis, financial and non-financial data observation, and semistructured interview responses with open-ended questions aid in qualitative data collection (Veltri, Lim, & Miller, 2015). I served as the primary data collection instrument in this study. I anticipated up to seven semistructured interviews with managers of a crop insurance company and performed a document review to collect data for the analysis process. The semistructured interview, together with researchers' good interview skills to collect data, is one of the most common qualitative research data collection methods (Cronin, 2014).

A semistructured interview is flexible and capable of revealing imperative and hidden facades of the topic of interest (Ozer & Douglas, 2015). Collection instruments such as semistructured interviews, company records, and documents can define the areas of interest that highlight detail information from participants' views, experiences, and motivations on a specific topic (Peters & Halcomb, 2015). Yin (2014) suggested that a documentation review is typical for case study research because it can provide a varied range of information on the topic of interest. The participants and chosen organization were related to the subject of interest for this study. I used semistructured interview technique as the second instrument to conduct interviews.

A good interview skill includes prompts to encourage elaboration or explanations, use of understandable language that is appropriate to the participants, and moderation

from easy to difficult questions (Ozer & Douglas, 2015). Moreover, researchers may review company documents, including official website information, publications, and reports that are associated to the topic of interest in a document review process of a case study research (Lewis, 2015). Cronin (2014) argued that numerous sources of data support the credibility of a study construct through data triangulation. I reviewed the official publications of the crop insurance company with its underwriting losses mitigation strategies, references, reports, initiatives, and related publications that were available on the company's official website.

I started interviewing the participants after I received the Walden University IRB approval and the signed consent from the participants. The principal data collection tool was the semistructured questionnaires consisting of nine questions regarding the topic of crop insurance underwriting strategies under the conceptual framework stated in the literature review section of this study. The face to face interviews lasted about 30 minutes at the participants' convenience place of choice. I planned carefully for the interview, took notes, listened intensively, and prompted participants to ensure the quality of the data collected.

Data triangulation ensures study reliability and validity (Cronin. 2014; Yin, 2014). Chen, Hailey, Wang, and Yu (2014) suggested that use of triangulation approach on semistructured interviews and documentation reviews ensures internal validity of a study. I used data triangulation to enhance the internal validity of the study. I used the interview protocol to ensure the reliability of the study and to guide the data collection process to reduce bias from my point of view (Yin, 2014). Correspondingly, I conducted

member checking to augment the reliability of my study. Researchers use the technique of member checking to help improve the accuracy, credibility, validity, and transferability in qualitative research (Morse, 2015). I shared the findings of my study with the participants to ensure that the information was accurate and reflected participants' perspective to enhance the study reliability. Participants reviewed my interview notes and draft notes to determine if the notes represented their viewpoint from the interview. The data organization techniques provided a detailed description of how I collected, organized, and analyzed data. As part of the organization, I included interview protocol and questions that were used in the table of contents and Appendix.

Data Collection Technique

Scholars use semistructured interviews to uncover all pertinent dimensions of the research question (Andersen, Christensen, Kehlet, & Bidstup, 2015). Bevan (2014) suggested that the advantage of using interviews for collecting data is that it provides participants with an opportunity to discuss and present their experiences through descriptions of events and activities. Yin (2014) furthered the advantages of interviews arguing that they provide the interviewer a chance to interpret the opinions about people or the insights provided by interviewees. Onsite semistructured interviews were conducted in this study. Additionally, there was a review of the company's financial and non-financial data, such as quarterly and annual reports, meeting records/minutes, and underwriting operation work plans.

I used semistructured interviews to gain insights that cover the scopes of strategies that crop insurance company managers use to mitigate net underwriting losses.

I used nine open-ended questions in my face to face recorded interactions with the participants. Each qualifying participant signed an informed consent form before the interview process begun. I coordinated interview times and place through emails and telephone calls with each participant. These prior arrangements about time and place kept participants informed of the requirements expected of them. I recorded the interviews upon obtaining the permission from the participants. Levashina, Hartwell, Morgeson, and Campion (2014) advised that researchers must obtain permission from the participants to record the interview.

I also gathered data by reviewing companys' documents, such as quarterly and annual reports, meeting records/minutes, and underwriting operation work plans. The review of the company documents started after requesting and receiving granted access. Data from company documents supplemented the context of the information for a better understanding of the objective of the study (De Massis & Kotlar, 2014).

Semistructured interviews can assess a specific business problem and helps in gaining an insight into the behavior of the participants while dealing with the business problem (Fortier et al., 2014; Gilbart et al., 2015). Semistructured interviews are flexible and may prevent the predictability for the participants (Onwuegbuzie & Byers, 2014; Owen, 2014). The quality of information from a semistructured interview may be distorted because participants may either be selective on what to say or please researchers (Conzelmann & Keye, 2014). I used company documents to counteract semistructured interview shortfalls because such documents are a steady, bland, and exact source of data (De Massis & Kotlar, 2014). However, semistructured interviews supplemented company

documents' limitation of its inability to tailor information that fit the objective of the research study (Stage & Manning, 2015).

After collecting data from participants using semistructured interviews and reviewing company documents, I engaged member checking to enhance the thoroughness of the participants' responses. Member checking enhanced the reliability and validity of the conclusion of my study. Member checking gives participants the opportunity to provide comments on the exactness of the researcher's interpretation of the collected data (Dubois & Gadde, 2014; Yin, 2014). Member checking allowed participants to review the conclusions I made from their responses. To ensure I accurately captured their responses, I send an email to participants with my synthesis of each participant's response to verify that my interpretation reflected their experiences, events, and what they meant. Each participant reviewed their responses and provided me with their feedback and acceptance of their interpreted response. I then used the member-checked responses as my data for the study.

Data Organization Technique

The gathering and organization of accumulated data increases in value as the research progresses (Yin, 2014). The management of accumulated data is vital to the success of the qualitative research (Baskarada, 2014). My technique to manage data included maintaining data in a protected log in my home computer. I used an electronic database to organize the data of this study. Electronic databases and analysis tools are available to researchers to conduct field studies. I used electronic databases to efficiently organize data, access information, simplify data, extract themes, and coding. Yin (2014)

stated that databases bond together related data and can be a central gateway to query, integrate, and interpret data. The research data log of my study in the home computer included document or interview data, a good naming convention for documents or interviewee number, the location and date of collection, and my research notes. The research notes, data log, and the electronic database were the systems for keeping track of data, emerging understandings, such as research logs, reflective journals, and cataloging/labeling systems.

The research notes included recorded notes arising from the review of collected documents plus notes about the conduct of the interviews. Note taking was an essential case study practice that ensured that I captured the inherent meaning of the documents in the review before, during, and after the interviews and in other methods of collection of data in the field (Yin, 2014). Comments and observations notes from the conduct of each interview assisted in the identification of codes and themes (Morse, 2015). During the interviews, I listened, took notes, recorded, and observed the participants.

As part of data organization technique, I identified the study participants and maintained the coded identification throughout the data collection and analysis process. In the data collection and analysis process, upholding participants' privacy implied referencing them in numbers only. I referenced the research notes as the collected notes during the data analysis process and saved them separately from interview notes. Data analysis, which comes after data collection includes the extraction of themes and coding to find meaningful and referenced information (Yin, 2014). During the data analysis

process, Yin (2014) suggested that researchers should keep accurate, comprehensive records of the activities employed in the data collection and analysis processes.

All the information from this study were secured at my home and accessible only by me. I have locked all other paper documents and materials in a cabinet and will destroy all the research documents after five years. I used a flash drive storage device as a backup with copies of the study materials. I will permanently delete all the data stored in the flash drive after five years.

Data Analysis

A case study data analysis comprises studying the content of information to classify, identify, and process data and draw a triangulated conclusion (Derobertmasure & Robertson, 2014). Teruel, Navarro, González, López-Jaquero, and Montero (2016) added that data analysis involves a process whereby researchers use thematic analysis to examine, identify, and record important themes appropriately within data. Triangulation in a case study approach provides rich data potentially revealing numerous themes, which increases the transferability of research findings (Elo et al., 2014). In this study, I employed data triangulation in data analysis to enhance rigor. I used triangulation to identify alternative perspectives and gain a holistic understanding of the underwriting loss phenomenon as suggested by Joslin and Müller (2016). To triangulate the study, I used multiple data collection strategies including observation, notes, and analyses of company documents to support the findings from my interviews.

The analysis of data included data acquisition, extraction, gleaning, grouping data into themes, analyzing, interpreting, and concluding. Yin (2014) suggested that such a

logical and sequential data analysis process enhances a good, reliable, and valid interpretation. Jagadish et al. (2014) suggested the same phases of the case study in data analysis. The acquisition of data encompassed engaging participants in a recorded semistructured interview. Correspondingly, I acquired additional data from company documents in the form of financial and non-financial data, such as quarterly and annual reports, meeting records/minutes, and underwriting operation work plans. Heale and Forbes (2013) suggested that the use of multiple sources of data increases the confidence of the findings. I analyzed the data by first transcribing the recorded interviews to reflect on participants' responses. To retrieve accurate company data, I narrowed my search to information related to strategies for mitigating net underwriting losses. I sought participant's guidance on where to find the information I needed. I then requested to make copies of the documents I received and took notes.

I acquired and included the company's documents and extract the transcribed interview data. Following this phase, I classified the relevant data into current themes for useful data analysis and concluded by interpreting the findings to ensure the conclusions were accurate. Thematic analysis helps to examine, identify, and record meaningful themes appropriately within a data (Teruel et al., 2016). In this study, a thematic analysis was helpful in focusing and correlating the key themes of the literature and conceptual framework. Pascoal, Narciso, and Pereira (2014) argued that researchers use thematic analysis to describe how the themes combine into a broader conceptualization.

I employed both NVivo software and thematic analysis to identify themes that relate to the research question and categorize data to create meaningful themes. I used

NVivo to assist in the data analysis. NVivo is a computer-assisted qualitative data software that has a coding option, multimedia functions, and rich text capabilities. Sotiriadou, Brouwers, and Le (2014) suggested that NVivo can benefit researchers with the data analysis process by detecting themes, garnering perceptions, and evolving conclusions. The NVivo software may increase the effectiveness and efficiency of learning and exploration of multiple meanings in data (Bazeley & Jackson, 2013). Hence, for this study, NVivo software was appropriate in assisting with the organization and analysis of data to enhance the identification of present themes.

Reliability and Validity

The rigor and trustworthiness of a qualitative study ensure reliability and validity (Morse, 2015). Study results are reliable when a measuring instrument yields consistent results and the subject of the measure remains the same (Yin, 2014). Gheondea-Eladi (2014) argued further that reliability refers to the extent of the consistency of the measurements by an instrument. Validity measures the finding of a study as accurate (Shekhar, 2014). Validity consists of the internal validity of the outcome and the external validity of the results of an experiment (Cronin, 2014). Cronin (2014) suggested that the reliability and validity of a study encompass the use of dependability, transferability, creditability, conformability, and data saturation approaches.

The rigor of the research method, transparency on the analytical procedures, reliability on the data collected, and my bias in the study are the most controversial parts of the qualitative research (Noble & Smith, 2015). Reliability in this study was the extent to which another researcher can repeat the study method at any time, at any place with

any other conditions or instruments, and should obtain the same findings (Morse, 2015). Readers' acceptability of my study will depend on whether it is dependable, confirmable, and creditable.

Dependability of the findings from my study increases if another researcher can repeat the study following my study protocol and arrive at the same conclusion (Yin, 2014). Dependability strategies include peer participation in the analysis process and a detailed description of the research methods (Bevan, 2014). I requested peers to review my study protocol to ensure that other researchers can repeat the study without showing the participants' information. A detailed guideline of the research method recounting the piece-by-piece approach to the procedure of my study increased dependability. I established, through member checking process, the dependability of the data and findings by providing participants with a chance to review the responses from their semistructured interviews.

I conducted interviews with managers of a crop insurance company to obtain the data. I shared the findings and data with the participants for their review and to check that the content accurately depicted their experiences (Munn, Porritt, Lockwood, Aromataris, & Pearson, 2014). I used member checking to increase the credibility of this qualitative study on how crop insurance managers strategize to mitigate net underwriting losses. Also, triangulation enhanced the credibility of the qualitative study. Triangulation increases the trustworthiness of the data collected in a qualitative study through the inclusion of multiple resources (Houghton et al., 2013). Feldman and Lowe (2015) postulated further that researchers must incorporate triangulation into research analysis to

warrant credibility and a scholar's report must reflect pieces of evidence. In this study on exploring the strategies for mitigating net underwriting losses, I will used semistructured interviews consisting of nine interview questions related to the research question and conceptual framework of the study.

Transferability is the ability to transfer research findings or methods from one group to another (Tsang, 2014). The tactics to enhance the transferability of a qualitative study include a detailed description of the accounts of the context, methods of research, samples of raw data, population and sampling, demographics and geographic boundaries of the study for readers to interpret (Yilmaz, 2013). To qualify this study as applicable to other external situations or settings, I included a detailed description of the relevant information in the introduction, research method and design, sampling, data organization, collection, and data analysis technique as suggested by Yilmaz (2013).

Confirmability is a demonstration that the data represents the participants' responses and that none are my viewpoints that arise from biases (Cope, 2014). Conclusively, member checking, field notes, audit trails, logbook entries, triangulation, and participant consultations helped me reduce bias in this study. Oun and Bach (2014) suggested that researchers should foster the neutrality of data. The inclusion of sentences from the participants in presentation of findings section enhanced study's confirmability. Participants sentences allows readers to understand that the conclusion and discussion of the findings are derived from the raw data collected from the participants (Cope, 2014). I remained objective in this study to enhance confirmability of the research.

Researchers reach data saturation by collecting enough information to replicate the study (Le Roux, 2016). Saturation is a tool used for ensuring that adequate and quality data are collected to support the study (Jackson & Mazzei, 2013). I secured an interview with participants who had the expertise and real-life experiences in mitigating net underwriting losses. Cross-checking responses from the interviews with the participants who had real-life experience and expertise helped this study in reaching data saturation. Also, to ensure my study reached data saturation, I replicated the findings as suggested by Morse (2015). I conducted a review of the company's documents to ensure that there were no additional findings or data available for exploring my research question to enhance the data saturation of the study. I resolved all issues of missing information and misrepresentation of data with the participants until the data saturation occurred.

Summary and Transition

In section 2 of this study, I explained my role as the researcher. I identified the research participants and the study population and sampling. I explained how the study method and design was appropriate for this study and the data collection, data organization, and data analysis techniques that I used in this study. I also explained the reliability and validity of the research study.

In section 3 of this study, I will include the application of study results to professional practice and implications for social change. Section 3 will also include a synopsis of the study, the presentation of data, findings, applications of the results of strategies to mitigate net underwriting losses, and social change implications. Finally,

Section 3 will include a recommendation for action, recommendation for further study, reflections on subjective experiences during the study, a summary, and research conclusions.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative single case study was to explore successful strategies that managers of a crop insurance company use to mitigate net underwriting losses. In Section 3, I present an analysis of information gathered from face-to-face semistructured interviews with four managers of a crop insurance company who had at least 10 years of tenure in a managerial position with the organization, participated in the underwriting program, and possessed knowledge pertaining the implementation of underwriting strategies. Other sources of data included company public documents and annual financial/underwriting reports. Five themes emerged through inductive coding and analysis. They were: disruptive technology, traditional underwriter vs. integrated profit-and-loss expert, streamlined applications by in-house technology or strategic alliances, opportunity assessment, and underwriting discipline. The findings showed the strategies managers used to mitigate net underwriting losses in their company to improve productivity were necessary for growth and sustainability.

Presentation of the Findings

In the study, I addressed the central research question: What strategies do crop insurance company managers use to mitigate net underwriting losses? I present, in this section, the data collected through semistructured interviews with participants using open-ended questions. To ensure qualified members of the crop insurance industry were the participants, I asked the following demographic questions:

1. What is your job title?

2. What industry do you service?
3. What is your current job function? How many years have you performed this function?

The purpose of the demographic questions was to recruit experienced crop insurance managers whose role involved implementing and using strategies in real-world insurance underwriting experience. A manager level professional with at least 10 years of experience is expected to have good insight and have come across diverse situations and overcome some of the barriers of underwriting losses. I made appointments with each interviewee on the same day but at separate times in their offices. This allowed for the management of privacy and confidentiality concerns and also the undisturbed taping of the interview.

I began hearing similar responses to the interview questions on the second interview. The interview of the third participant verified the recurring themes. The interview with the fourth participant confirmed the same answers which kept appearing with minimal or no difference. The analysis of the interviews using NVivo 11.0 software confirmed the themes by the third interview: there was no further feasible coding, and no new themes emerged. Fusch and Ness (2015) recommended that researchers test data saturation by considering its credibility and transferability to other environments. It seemed, after coding and theme development of the data, that there was no additional information to obtain and another researcher would be able to replicate the study and get the same results.

All four participants were enthusiastic about sharing their company public documents and annual financial/underwriting reports along with their opinion on how they embedded the strategies into the statements to overcome net underwriting losses. The participants exhibited the strength and success of their underwriting on their annual financial statements. Analysis of in-person interviews and documents of the company underwriting strategies provided insight on the topic.

During the process of interviewing and analyzing documents for this study, themes emerged that revealed particular strategies. The use of alphanumeric pseudonyms as a method of protecting participants' and business' identity helped reduce personal identification of participants. This method also helped maintain the integrity of the research (Yin, 2014). I gave each participant a pseudonym followed by an assigned number ranging from 1–4. I ensured the protection of participants' rights and privacy by requesting authorization from each participant via informed consent.

Identification and Analysis of Themes

The study involved interviewing and document analysis of the strategies to mitigate net underwriting losses by managers of a crop insurance company. I present, below, the analysis of the themes identified in the interviews, followed by the themes identified in the text analysis of the documents. The interview analysis themes were:

1) Disruptive technology,
2) Traditional underwriter vs. integrated profit-and-loss expert,
3) Streamline applications by in-house technology or strategic alliances,
4) Opportunity assessment, and

5) Underwriting discipline.

Table 2

Interview Questions and Primary Themes

Interview Questions	Primary Theme
1. What strategies have you used to mitigate net underwriting losses?	Disruptive technology
2. What strategies did you find worked best to mitigate net underwriting losses?	Disruptive technology
3. How do you assess the effectiveness of your strategies for mitigating net underwriting losses?	Opportunity assessment
4. How did your employees respond to your different techniques to mitigate net underwriting losses?	Integrated profit-and-loss expert
5. How do you communicate net underwriting mitigation strategies with your employees?	Disruptive technology and Streamlined applications by in-house technology or strategic alliances
6. How did your organization address the key barriers to implementing the strategies for mitigating net underwriting losses?	Opportunity assessment
7. How did your organization integrate net underwriting strategies into its core values and identity?	Streamlined applications by in-house technology or strategic alliances
8. How does your organization promote and reward the innovation efforts and strategies of net underwriting?	Underwriting discipline
9. What would you like to add that we did not address about the strategies of mitigating net underwriting losses?	Underwriting discipline

Disruptive technology tools

All participants said that their most effective strategy was disruptive technology tools through which they orchestrated a variety of emerging technologies. Digital labor,

data analytics, and behavioral driven models were the successful disruptive innovation tools for their company. Participants identified disruptive technology as a flexible and efficient mode of enhancing the underwriting success. Disruptive technology helped in data gathering, analyzing customer behaviors, risk profiling, and finalizing the price of the policy. Also, participants stated that disruptive technology tools had helped them to contextualize and digitize insurance products - customer transparency to choose the right policy even without the agent.

Participant 1 stated,

> We embrace a digital and agile mindset in our corporate culture as well as in day-to-day operations. We adapt to policy changes and prices swiftly across the underwriting board by leveraging enablers such as digital labor, predictive analytics, and insure technology to optimize results.

Participant 3 said, "Artificial intelligence helps us understand and act promptly on emerging trends, identify operational issues or opportunities in real time, and price risk more accurately." All participants identified the following points:

- Disruptive technology was helpful in risk management;
- Disruptive technology provided better decision making and faster processing leading to higher underwriting gains;
- Used disruptive technology to process a vast amount of unstructured data while continuously learning from human interactions with data,
- Established digital channels for real-time solutions and;

- Disruptive technology helped in risk prevention, for instance, they used technology to alert policyholders of upcoming risks beforehand through their smart-home devices.

In my literature review, Brick and Visser (2015) asserted that the Internet had opened the insurance market wide open to many potentials. To succeed globally is to welcome disruptive technology as a risk management tool because stochastic production technology could produce a stochastic output. The participants saw benefits in embracing the disruptive nature of technology.

Traditional Underwriter vs. Integrated Profit-and-Loss Expert

Underwriting managers are custodians, integrators, and collaborators of the end-to-end process. Participants said they used the following strategies to upgrade traditional underwriters into integrated profit-and-loss experts:

- Mandated use of automation in repeated tasks;
- Encouraged use of data science in decision making;
- Emphasized that underwriters were custodians of the overall underwriting process and not as just an actual performer;
- Empowered underwriters to anticipate and react to disruptive headwinds; and
- Integrated underwriters as profit-and-loss expert who used repeated tasks and analytics.

The company strategic option of integrating underwriters as profit-and-loss experts are in line with the cost cut strategy upon which knowledge integration is vital for insurance companies undergoing underwriting difficulties (Edwards et al., 2016).

Through the lens of the self-insure self-protect theory, participants were aware of cost cuts right from the planning stage which were central to the survival of a strategy of integrating underwriters to have a goal on the bottom line number for the company (Northouse, 2016). Training underwriters to be profit-and-loss experts is an extension of the self-insure self-protect theory which requires some expenditure in education as a cost that managers of crop insurance companies must consume to secure a competitive advantage and reduce risk (Surls et al., 2015). The literature review did not give preference to such a tactic, but participants stated that it was a unique approach adding to their underwriting success story.

Streamline Applications by In-House Technology or Strategic Alliances

Participants said that they credit their success to intermarriage of building in-house technology and building strength through strategic alliances. They said that they worked on building expertise within the company in some noncore areas, but it was time-consuming. Therefore, they leveraged the existing expertise of established companies in a variety of areas to accelerate the implementation to realize benefits sooner. They strategically employed in-house technology and strategic alliances while considering the impact of changing market conditions.

From the viewpoint of self-insure and self-protect theory, companies must proactively undertake any action necessary to self-insure (Di Falco & Bulte, 2013). Also, from the self-insure and self-protect standpoint, Adams et al. (2017) established that firms managed their risks first for stakeholders' sake by expending on improvising in-house internal precautions before addressing other adventures. Lyu and Barre' (2017)

observed that companies must integrate both internal and external expertise as an option and choice to reduce financial distress resulting from uncertainties.

Opportunity Assessment

All participants acknowledged the need to be on constant vigilance and continuous improvement not to miss opportunities. They said the company had selected individuals who were tasked with constantly seeking underwriting opportunities. The participants added that they avoided piling underwriters with unpopular ventures by first identifying the markets fitting their organization's strategy and operational structure.

All participants identified with the opportunity assessment as one of the most effective time and cost reduction strategy (Brandes et al., 2016). In assessing opportunities first, the underwriters could then perform more accurate and more informed risk assessments in a fraction of the time they used to take. Their underwriters used the extra time to identify cross-selling opportunities, aggregate new policies, retain existing policyholders, and thus upsurge their underwriting gain.

Proponents of self-insure and self-protect theory posited that for long-term financial success to outsmart competitors a company must bestow suitable resources to strategic operations (Gu, Yi, & Ye, 2014). Also, through the lens of the self-insure and self-protect conceptual theory, Martínez, Pascual, and Maturana (2016) posited that optimal organizational performance depends upon a financial risk mitigation strategy and continuous assessment for opportunities. The opportunity assessment is a pendulum of the risk-averse and risk-seeking scale, which is a factor in the self-insure and self-protect framework (Arshad et al., 2016).

Underwriting Discipline

All participants stated that they encouraged and fostered a culture of high employee ownership, engagement, and customer service within an environment of continuous improvement. The participants reiterated that underwriting discipline was critical for their business. Their focus was on disciplined pricing and underwriting processes that gave comfort to policyholders and applicants. Participant 2 stated, "We have discovered that insurance applicants may sometimes call more than once. We have ensured that any other underwriter should come to the same conclusion monetarily for that same applicant. This is underwriting discipline that comforts our policyholders." They said that through their leadership and the manifesto of the company, they emphasized the adoption of automation and sophisticated tools to be able to reduce sale-to-issue time. They referred to this as a discipline.

Hiebert (1983) suggested that organizations with more significant resources stand a higher chance of succeeding in the market. In viewing these findings through the self-insure and self-protect lens, it appeared that managers could benefit through the smart and disciplined approach to underwriting by setting prices and efficient processes that engages resources.

Applications to Professional Practice

The applicability of study findings depends on the area of direct application of the strategies by companies struggling to mitigate net underwriting losses. This research is principally meaningful to managers of crop insurance companies. Mitigation of net

underwriting losses for managers of crop insurance has been of a growing alarm (Zhou et al., 2017).

The findings from this study are related to the self-insure and self-protect theory which indicated that managers of crop insurance may use the principles of this theory as designed by Hiebert (1983) for effective mitigation of net underwriting losses. The findings are related to the conceptual theory of this study because of the influence of the motivation for care through optimal utilization of resources for effective mitigation of underwriting losses. Managers of crop insurance companies already know of the severity of potential occurrence of losses and consequently should apply the findings from this study as a preventive and protective mechanism thus increase some level of stakeholders' confidence with the company. Such confidence is vital to the financial existence of companies. Additionally, managers of crop insurance companies should find the right balance between the findings of this study for maximum gains.

The implications for positive change is that managers of crop insurance companies may use the findings of this study to mitigate net underwriting losses and enrich the stakeholders' investments. If these identified strategies are applied to practice, managers may reduce risk to crop insurance companies and our farmers by providing financial services which distribute risk across a pool of participants. Educational institutes can use these identified strategies and information about net underwriting losses to train interested future underwriting students for required skill in the business of crop insurance and attract students into the insurance workforce.

Implications for Social Change

The identification of a problem to the general public beyond just the immediate small-scale environment of the business under study is social change (Hammersley, 2014). A social change is an idea of inducing a solution in responding to the managerial challenges unique to a demographic. A study of the literature indicated a challenging fiasco for managers in the crop insurance industry. According to the Schnitkey, Woodard, and Sherrick (2017), 2012 was a financially disastrous year for crop insurance companies because the average underwriting losses as a percentage to retained premium was negative 15.3%. These unexpected high losses are a burden to the stakeholders of the company, society, depletes the financial impact of the insurance system, reduce farmer income, and place greater need for additional resources within the farming community to address losses and insurance. The responsibility for strategies to mitigate net underwriting losses depends on the managers of an organization.

Overcoming these challenges will be a social change for all stakeholders in the insurance industry. The identification of the problem indicated the need for exploration of how managers of a crop insurance company successfully strategized to mitigate net underwriting losses. Planning and implementing these strategies symbolizes a significant challenge for managers of crop insurance companies and sustain their business' competitive advantage.

The implications for social change is that findings from this study provides an opportunity for managers of insurance companies to apply the strategies to respond to the net underwriting loss challenges. Study findings include the suggestion that an

unmanaged net underwriting can have devastating consequences for insurance companies. The conceptual framework of self-insure and self-protect theory formed the basis for the study. In alignment with this conceptual theory, the findings established that managers of the insurance company need to expend company resources together with the identified strategies to manage this problem. It is possible that managers of companies who will not employ these identified strategies will cause financial misery, possibly reducing the value for all stakeholders. These inadvertent consequences may result in rendering such business with fewer resources to manage the underwriting problem.

Managers of insurance companies who have recognized the challenges of underwriting losses are required to develop mitigation strategies (Yang et al., 2016). Managers who fail to take an active approach may cause their companies to suffer from financial anguish, hinder profitable prolongation of the business, derail the competitive advantage, hamper successful ventures in other areas of the company, and limit the exchange of knowledge. Higher-level executives' lack of attention and devotion of resources and the identified strategies to the underwriting problem will impede the vision and goals of the company. Thus, a social benefit from this study's finding to farmers and all stakeholders of the crop insurance companies maybe the avoidance of high losses, less burdens to the society, positive financial impact to the insurance system, higher farmer income, and less need for additional resources within the farming community to address losses and insurance. The findings of this study may lead to lowering insurance premiums to the farm community which will promote positive social change because farmers could

use the premium insurance savings to produce more and potentially reduce consumers' cost from importing foreign foods.

Recommendations for Action

Managers of crop insurance companies can use the information shared in this study to strategize and effectively mitigate net underwriting losses. Managers can mitigate net underwriting losses by employing some of the strategies shared by participants. The findings of this study help encourage managers of crop insurance companies if they consider the following recommendations for instituting practices regarding net underwriting losses. The proposals include the sharing of knowledge and underwriting discipline with other firms to innovate underwriting agendas, ensuring the implementation of strategic underwriting plans ahead of new opportunities, determining the amount of resources consumed for each in-house technology or alliances and devise efficiencies of each of the underwriting strategy, and have disruptive-opportunity-seeking strategies as a brand and identity for their companies.

As stated in the invitation to participate, the participants of the study will receive a copy of this study. Anyone with access to ProQuest Dissertations and Theses Database can obtain a copy of this study. Persons or organizations may request the approved abstract by writing to the author. Researchers or businesses may use these findings to conceive ideas and implement social change solutions receptive to their specific restraints.

Recommendations for Further Research

This study may provide the basis for future research in other areas of inquiry. The study of underwriting challenge for the crop insurance industry through the self-insure and self-protect lens may be the foundation to study the views, perspectives, or practices regarding underwriting losses mitigation in other environments. Further research is necessary for other regions outside of the Midwestern United States to test if the findings are similar or deviate from the discovery with this participant group. Another area of further research is with claims or premium price underwriting-related professionals within the same region. Further research into the factors leading to the history of how this underwriting challenge in the crop insurance industry came to be may help other industries be vigilant to prevent such a constraint from occurring for their industry and rather increase value to the industry.

This study was limited to a single case qualitative methodology in the Midwestern United States. Researching with another conceptual lens or methodology can bring out different results. Future research using other designs like phenomenology can highlight different behaviors or practices from lived experiences. A quantitative methodology study may highlight the magnitude of the problem or confirm a hypothesis.

Reflections

I began the doctorate journey expecting it to be cruelling and it has proved to be challenging but fulfilling. The work was challenging, but patience and a positive attitude were the attributes needed to achieve goals. I gained a better understanding of the phenomenon in the study through the actual research and analysis process in a real-life

context. Participants' cooperation and forthrightness were critical because it helped to develop a valid study, which can aid managers of crop insurance companies in making informed business decisions. The study produced viable strategies which became evident that they might become the tools managers could use to address net underwriting phenomenon within their organizations. I found, through this study's experience, a wide-ranging understanding of the doctoral research process required to induce valid conclusions. The phases of this journey provided me with an opportunity to understand the underwriting phenomenon under investigation, collect applicable data, complete data analysis, and determine practical findings for managerial application in the business. I have learned through this research process on how to investigate and find other innovative solutions and share the knowledge with managers and other interested parties. I now possess a solid foundation to begin and conclude research leading to social change and contribute to business practice.

Conclusion

Exploring the challenges of net underwriting for the crop insurance industry is important to the U.S. economy. Managers of crop insurance companies are continually dealing with net underwriting losses, and the sharing of knowledge about how to mitigate could assist sustainability of their organizations. Additionally, the crop insurance managers who were participants in the study recognized that such strategies could ensure company's success.

I conducted this single case study to identify successful strategies used by managers of a crop insurance company to mitigate net underwriting losses. The study induced five

themes which managers of the crop insurance company identified as making them successful in mitigating net underwriting losses. Managers of crop insurance companies need to consider these themes during the formulation of a corporate strategy for mitigating net underwriting losses. The five themes that emerged from this study were:

- Disruptive technology,
- Traditional underwriter vs integrated profit-and-loss expert,
- Streamlined applications by in-house technology or strategic alliances,
- Opportunity assessment, and
- Underwriting discipline.

These findings are envisioned to be used by managers of crop insurance companies to mitigate net underwriting losses and create successful business opportunities. This research promotes positive social change by lowering insurance premiums to the farm community. The results of this study may lead to the reduction in premium paid by farmers which becomes supplemental income and encouragement to farm far more and preserving farmland and thereby could help U.S. farms to prosper.

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Appendix A: Invitation Letter

June 15, 2018

Company YY
Address

Re: Research Study - Crop Insurance Strategies for Mitigating Net Underwriting Losses

Dear XXX:

You are invited to participate in a research study that will explore crop insurance strategies for mitigating net underwriting losses. I am pursuing a Doctorate Degree in Business Administration with a specialization in Accounting from Walden University, and this study is the final step in my pursuit of this degree. I am conducting this research to explore successful strategies that managers of crop insurance companies use to mitigate net underwriting losses. I am inviting you to participate in this study because your views on the crop insurance and your experience on impacts of the net underwriting losses may positively influence the identification of the successful strategies to mitigate net underwriting losses in the crop insurance industry. The results of this study may assist managers of crop insurance companies to develop strategies to mitigate net underwriting losses to enrich the stakeholders' investments.

I am inviting crop insurance company leaders and underwriting managers with established underwriting experience to participate in this study. The participant selected would have made decisions within the past ten years that had net gain business implications related to crop insurance underwriting. I will appreciate the opportunity to interview with you for 30 minutes to explore successful strategies for mitigating net underwriting losses. The interviews will be face-to-face, and audio recorded. You are free to decline to participate for any reason. If you decide to join the study, you may still withdraw from the study. I will schedule the interview time and place according to your availability.

The company name and participants' names will remain confidential and will not be disclosed to other entities. There is no cost to you if you decide to participate in this study. I am unable to compensate your efforts, though I will appreciate and thank you for participation.

If you are interested in participating in this study, please reply to [redacted]. I look forward to hearing from you and meeting you in person soon. Thank you for your consideration and time.

Sincerely,

Kennedy Kitur

Appendix B: Interview Protocol

1. Ask crop insurance managers via phone call or by e-mail to participate in this study voluntarily.
2. E-mail an introduction to the study and the study's consent form to the potential participants.
    a) I will introduce myself and the study's purpose and have potential participants indicate if they are willing to participate in the study and follow the interview procedures.
    b) The participant will fill out, sign, date, and return the study consent form to me with an awareness of an option to withdraw at any time.
    c) I will set up a face-to-face semistructured interview after receiving a properly completed and verified study consent form.
3. Set up an appointment for a face-to-face semistructured interview.
    a) I will begin with salutations, personal introductions, and an overview of the research topic.
    b) I will advise the participants of their confidentiality and the right to privacy before I commence the interview.
    c) I will inform the participants that the interview will take approximately 30 minutes.
    d) I will also inform participants that the interview will be audio recorded and I will be taking notes. I will ask if they are okay with the recording.

e) I will begin the interview by asking the participants the following interview questions.

i What strategies have you used to mitigate net underwriting losses?

ii What strategies did you find worked best to mitigate net underwriting losses?

iii How do you assess the effectiveness of your strategies for mitigating net underwriting losses?

iv How did your employees respond to your different techniques to mitigate net underwriting losses?

v How do you communicate net underwriting mitigation strategies with your employees?

vi How did your organization address the key barriers to implementing the strategies for mitigating net underwriting losses?

vii How did your organization integrate net underwriting strategies into its core values and identity?

viii How does your organization promote and reward the innovation efforts and strategies of net underwriting?

ix What would you like to add that we did not address about the strategies of mitigating net underwriting losses?

f) I will thank the participants at the end of each interview.

4. Follow-Up Member-Checking Interview

a) I will synthesize participants answers and mail a copy to them for verification.

b) I will contact them shortly after again for a brief follow-up interview, so I can verify the recorded information and my interpretations of the data and provide corrections or clarifications if they may like.

Appendix C: Interview Questions

1. What strategies have you used to mitigate net underwriting losses?
2. What strategies did you find worked best to mitigate net underwriting losses?
3. How do you assess the effectiveness of your strategies for mitigating net underwriting losses?
4. How did your employees respond to your different techniques to mitigate net underwriting losses?
5. How do you communicate net underwriting mitigation strategies with your employees?
6. How did your organization address the key barriers to implementing the strategies for mitigating net underwriting losses?
7. How did your organization integrate net underwriting strategies into its core values and identity?
8. How does your organization promote and reward the innovation efforts and strategies of net underwriting?
9. What would you like to add that we did not address about the strategies of mitigating net underwriting losses?