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Climate Catastrophe and Insurance Industry Resilience

Rowan Williams

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December 4, 2022

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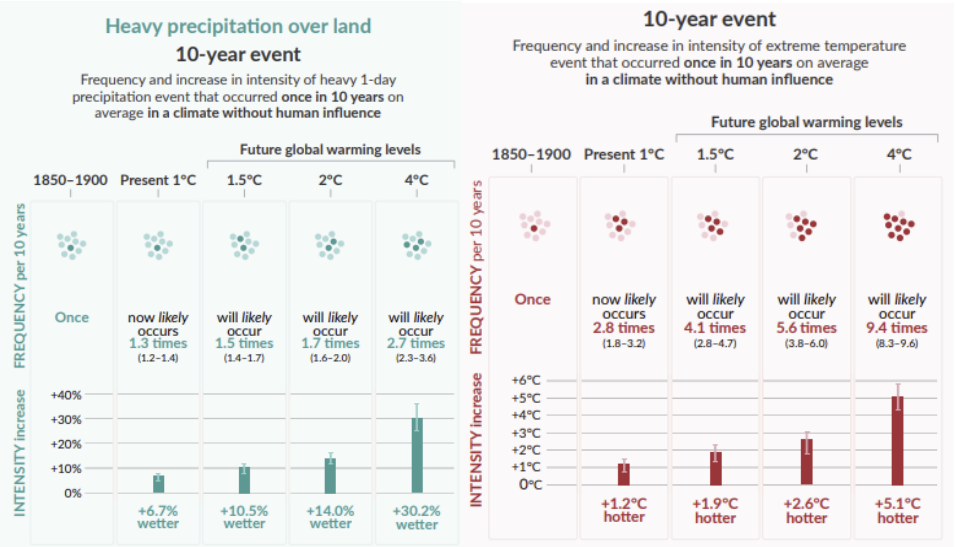
Introduction

Every year climate change-related disasters have aggressively and horrifically brought severe loss to people and businesses around the globe, and the pace and scale of these events are unwavering. Storms of biblical scale are not foreign to the insurance industry; one could argue the current state of the property insurance market stemmed from events such as Hurricane Andrew in 1992 and the 2004 and 2005 Hurricane seasons that brought with it, Katrina. The increasing frequency of adverse weather events stemming from global temperature rise is seen in rabid wildfires on the U.S. west coast, long spurs of drought, and unprecedented severe convective storms. Large storms are no longer 1 in 100-year events, they are the 5 or 6 hurricanes any layperson much less an insurance professional can roll off the tip of their tongue from the past 10 years, Sandy, Harvey, Ida, Irma, Maria, Ian all come to mind. These storms have caused mass destruction, and from this, we see the tightening of capital deployment and strict underwriting across the industry. The Monte Carlo fallacy is more evident than ever in the property insurance market, reliance on forecasting and modeling is paramount, and a catastrophic event in one year does not give much assurance that insurers will not be hit just as hard next year with a Cat 4 hurricane, ferocious and untamable wildfire, or the sudden and intense devastation brought by a tornado. Insurers and producers that successfully navigate the unpredictability and vigorous nature of the future property insurance market will be the few left standing when the dust settles, and we can expect sweeping innovation both technically and structurally for future insurance markets.

Climate Change Impact on the Property Insurance Industry

Climate change shows itself through rising sea levels, large storms, drought, and greater precipitation. Increasing surface temperatures and moisture have led to more severe hurricanes

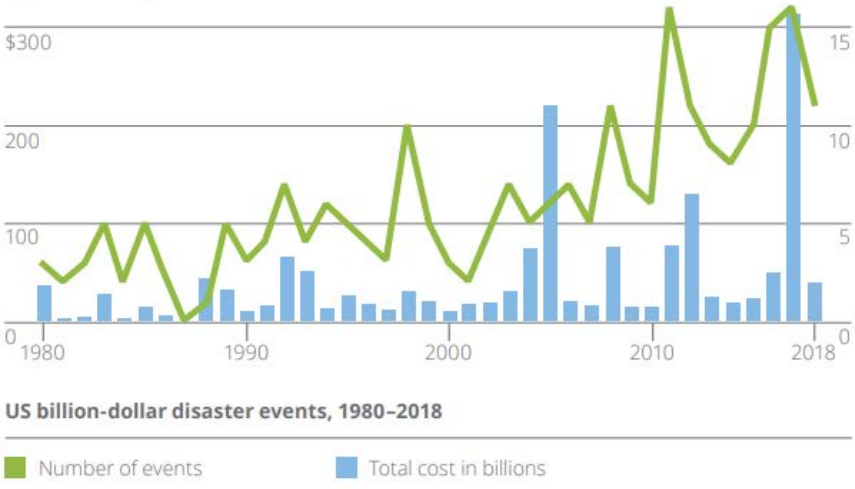
that increase in intensity more rapidly. Recently hurricanes have gone from Category 1 to Category 5 in hours, and the swift development of these storms leaves homeowners and businesses with little time to react. Year after year storms have become increasingly devastating, in 2017 hurricane Harvey resulted in insured losses of $30 billion, and experts project hurricane Ian will total more than $60 billion in property losses. The rapid increase in the frequency of natural disasters in the U.S. has occurred at an unprecedented rate. Between 1980 and 2021 the U.S. averaged eight natural disasters per year and so far, there have been 15 in 2022 (Cho, 2022). This trend shows no sign of slowing until major changes take place by world governments to slow the impact of climate change. The Intergovernmental Panel on Climate Change has stated that global surface temperature will continue to increase until at least mid-century under all emissions scenarios considered. Global warming of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in CO2 and other greenhouse gas emissions occur in the coming decades (IPCC, 2021).



The above charts from the IPCC report outline the increasing probability of 10-year heavy precipitation and extreme temperature events as global temperatures and subsequent moisture

increase. If the IPCC is right in its predictions, severe precipitation events will almost double in frequency during our lifetimes. Additionally, the frequency of extreme temperature events will quadruple in that same time leading to increased droughts and wildfires. Other reports drafted by the National Oceanic and Atmospheric Administration forecast that U.S. coastal regions will see between 10 and 12 inches of sea level rise (Rupe, 2022). This will result in more severe property losses on the coast and further inland than what historical data has shown. Rising sea levels and extreme temperatures leading to wildfires have significantly increased instances of property insurance claims. In the first half of 2021 alone, natural disasters led to over $42 billion in insured losses in the U.S. (Fredman, 2022). Later that year Hurricane Ida alone accounted for over $30 billion in estimated insured losses, and the unique winter storm Uri that almost froze over Texas resulted in $15 billion in insured losses. Adverse weather events stemming from climate change will have a significant fiscal impact on the insurance industry in the future. Swiss Re has projected that property losses due to climate change could increase by more than 60% by 2040 (Cho, 2022).

Figure 1: Rising weather-related losses[5]



Source: BlackRock Investment Institute, with data from NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters, October 2018.

The availability of insurance because of the repetitive hits to the property insurance industry has tightened drastically. Insurers must respond to the increasing frequency and severity of natural catastrophes by balancing the increased demand from shock loss events and the decreasing availability of deployable capital. Insurers walk a thin line in assuming these risks, and the industry has begun to utilize innovative strategies and tools to structure and price climate risk. By limiting capacity for flood, storm surge, and windstorm the insurance industry continues to react each year to events such as hurricane Ian. Restrictions on writing business in coastal regions and barrier islands are prevalent in any property insurers underwriting guidelines and otherwise, rate increases and non-renewals are commonplace in the hardest market seen in 30 years. In response to recent severe storms such as Ian, demand for insurance will be up, and rates for coastal risks will be high and very restrictive. Insurers may cut down the limits of insurance and utilize more reinsurance to protect themselves. Property and casualty insurers should also diversify geographically and target inland risk to offset coastal risk exposure. Already, insureds require capital deployment from multiple excess and surplus carriers to protect against climate risks, we can expect to see this trend continue as exposures with high total insurable values may require upwards of three carriers to provide sufficient coverage.

Innovation and Response

The insurance industry must adapt and innovate its products to respond to climate risks. Utilization of technological advances, innovative products, alternative capital resources, revised business models, and organizational awareness will guide insurers and brokers through the challenges facing the property insurance industry. The use of technology in insurance is at a breakthrough point, satellite imaging, drones, telematics, and the internet of things are tools being utilized by insurers to better assess and react to a wide array of risks. Investments in

catastrophe modeling, aerial imagery, and drones by the insurance industry validate flood footprints and develop real-time assessments of the impact of storms. Insurance consultant Aon has partnered with Finnish-Polish microsatellite manufacturer ICEYE, to provide real-time imaging of typhoons and flood impact in Japan. The satellite solution combines ICEYE's Synthetic-Aperture Radar (SAR) data with Aon's digital building datasets generated by using Aon's patented technology to deliver near real-time insights on the potential consequences of flood events. This allows insurers to assess the potential impact of a flood on their portfolio within 24 hours of the water's peak, enhancing insurers' reserving and claims handling process with a faster response time (Helsinki, 2021). U.S. insurers operating in flood-exposed regions should acquire similar partnerships and technology to faster estimate reserves, efficiently manage claims, and develop more comprehensive mapping data for future modeling. Deployment of drones after a severe event will give claims adjusters an initial and thorough look at the extent of loss in areas inaccessible due to the extent of the damage. Catastrophe modeling is a reliable tool to proficiently assess risks but cannot respond to the dynamic nature of climate change risks. The uncertainty and ever-changing nature of climate risks make historical loss data used in cat modeling less useful for future loss projections. Insurers need to be at the forefront of climate science advances to remain current on the latest data for loss control advances. Advancing analytics through augmenting climate change models with "big data" have immense potential to broaden risk assessment considerations.

Parametric insurance has a significant role to play in properly managing climate risks. In Florida parametric insurer StormPeace has developed a product that pays claims based on two indices, how close the distance from an insured's property to the eye of a hurricane is and the category of the hurricane when at that nearest point. Jumpstart, another parametric insurance

product for earthquakes on the west coast fulfills claims through the insured's response to a text of whether they were affected by an earthquake or not. Insureds only must respond that they were affected and receive a direct deposit of $10,000 within 48 hours of the event. Products like these have a huge part to play as supplementary options to the standard insurance market. For flood-related perils, parametric insurance fills a need to provide quick capital for insureds to manage the initial fallout from property loss.

We see MGAs and insuretech companies taking great strides in modeling advances and expertise of certain high-risk business lines that larger carriers are unable to administer. reThought an MGA that focuses on commercial flood risk has invested heavily in catastrophe modeling advances. Partnering with risk modeling services such as Verisk, CoreLogic, and CatRisks, reThought has been able to produce models with predictive capabilities that can run simulations over a pinpointed location for frequency and severity. Recent collections of topographical data for the entirety of the U.S. in combination with analytical capabilities and advances in meteorology have bridged the gap between geospatial modeling and actuarial data (Lamparelli, 2015). MGAs such as reThought can more adequately assess and underwrite flood risks through these new models and maps as well as estimate loss costs and aggregate exposure. Given the inflationary state of the economy demand for excess coverage will continue to rise, and the industry needs to encourage further development of companies and products that bring unique strategies and proficiency in combating climate-related risks.

Insurers must develop the organizational culture of the position they are going to take on these emerging climate risks, and corresponding ERM strategies. Insurers see climate change as a growth opportunity despite its propensity to result in large losses. For companies, finding the balance to expose themselves to these risks while developing a profitable book of business will

be the key challenge. Insurance carrier Chubb has voiced eagerness to combat the increasing challenges of climate risk, with CEO Evan Greenberg stating “Society has been urbanizing and concentrating exposures along the coasts and other flood-exposed areas. Beyond rising physical-property exposures, there are rising economic and social exposures, and all of that means opportunity for insurance” (Scism, 2018). To take on the greater demand of insurers across all lines of business due to climate change, carriers must stress test their total exposures against projected climate hazards. The interconnectedness of global systems will increase the concentration of risk as climate-related losses spread over different lines of business and coverages such as business interruption that is highly exposed to climate risks. In a broad sense, the risk of increasing global temperatures by itself leads to increases in the probability of both flood and wildfire. Recognizing the ever-increasing interconnectedness within an organization over multiple lines of business and incorporating this factor into models to deliver a big picture on the impact of a singular climate event upon an insurer’s entire portfolio will be a key to remaining resilient to these risks. Organization-wide stress tests of plausible climate scenarios will help insurers determine the impact on their capital and liquidity in any event.

Collaboration with insurance regulators, government, and policyholders can help insurers align their interests with these parties. Due to the threats posed by climate change property insurers have a greater interest in shifting industry regulation to ensure profitability as these risks become more severe. Currently, the risk is already bringing more regulatory attention to the insurance industry, and regulators lack confidence that insurers are readily prepared to manage climate change risks. Joint efforts should be sought out to garner industry-wide efforts to educate policyholders and lawmakers on how to fortify against severe weather events. Furthermore, insurers should promote adaptation practices through building codes and construction for

property owners to better handle climate risks. Insurers can incentivize policyholders through an elevation credit if they provide proof of first-floor elevation, a practice deployed by reThought. The amount of credit is based on the elevation difference between the ground and first floor of the building and results in reduced premiums for policyholders. Opportunities for other mitigative and adaptive construction efforts by policyholders to reduce premiums could have an exponential effect on the pace and scale of implementation. Installation of Smart Flood Vents for homeowners could drastically reduce loss costs and damages by relieving water pressure during flooding which can reduce significant foundational and structural damage. The insurance industry should continue to investigate current advances in construction and encourage policyholders to invest in them.

Excess and Surplus Market

The excess and surplus market is in a position most dept to manage the volatility of climate risks. With the ability to underwrite free of rate and form, E&S carriers can diligently deploy their capital in flexible ways to meet client needs. Admitted insurers are pulling back on underwriting certain climate risks, and the opportunity for E&S carriers has expanded, making the excess and surplus market one of the fastest growing within the insurance industry. E&S is becoming a more valuable and legitimate option with new cat modeling tools and a better understanding of climate risks. Although, the unfamiliarity among traditional financial institutions with the E&S market has resulted in slower adoption as a viable source of insurance. Flood, a peril commonly underwritten by E&S carriers, is required for homeowners to be covered against by their lenders, although even many of these lenders are unfamiliar with the E&S insurance market as a confident option for coverage. The E&S market has an opportunity to gain recognition and expand as a trusted market to properly react to high-risk climate exposures

by offering higher limits and broader coverage than the admitted market could do. Amongst E&S carriers there is also the opportunity for brokers to piece together comprehensive coverage for the most difficult risks through utilizing multiple insurers and small limits to acquire these coverages at an affordable rate to clients and without overextending carrier capital. The ability to respond quickly to severe climate events with appropriate risk-based pricing will ensure excess and surplus carriers continue to provide plentiful capital for risks that otherwise would be uninsurable.

Conclusion

The demand to insure disastrous climate risks will be difficult, but there is vast opportunity for innovation in the industry to deliver value in the worldwide effort against global warming. The industry needs to remain vigilant to the range of different and evolving risks due to climate change and continue to evolve their response strategy. Further investment in unique insurance instruments such as parametric pricing, insuretech, and MGA expert underwriting in the E&S space will be the factors that continue to bring innovative solutions to a world strife with risk. The insurance industry has a responsibility and interest to reduce and mitigate the stark effects of global warming. Their response to these events now will shape their reputation as the severity of climate risks continues to increase to unimaginable levels over this century.

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Inflation: A Silver Lining

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1. Introduction

Over the course of the past year, inflation has been at the forefront of discourse in the Wholesale and Surplus Insurance (WSI) industry. A myriad of factors including government spending, supply chain issues, and post-pandemic restlessness have all contributed to an ascending rate of inflation, which in turn has resulted in a reduction of the U.S. dollar's purchasing power. Inflation, further exacerbated by material and labor shortages, is resulting in unpredictable increases to both claim amount and time until claim settlement. Changes in claim cost and settlement time make pricing, reserving, and maintaining a book of business more difficult for WSI carriers. While admitted carriers will bear many of these same complications, WSI carriers are positioned to respond more effectively due to heavy regulations in the admitted market. A WSI carrier who wishes to minimize its losses attributed to inflation should have a strong understanding of its most pertinent inflationary pressures and should take advantage of the flexibility that comes with being in the non-admitted market.

2. Inflationary Trends

2.1 CPI

General inflation is traditionally quantified using the Consumer Price Index (CPI). Calculated monthly by the Bureau of Labor Statistics, the CPI is a weighted average of the prices of consumer products, weighted by how often they are purchased. An annual CPI inflation rate of 2% (equivalent to a monthly rate of .17%) is considered healthy because it encourages economic activity without severely diminishing the value of savings. Figure 1, which provides monthly inflation rates from January of 2012 through September of 2022, illustrates that after a pandemic-related dip in inflation in March of 2020, monthly inflation rates continued to grow at a pace not seen since 2012. Several months since March of 2020 have exceeded the target

threshold of .17%, reaching as high as 1.13 percentage points above (U.S. Bureau of Labor Statistics, 2022).

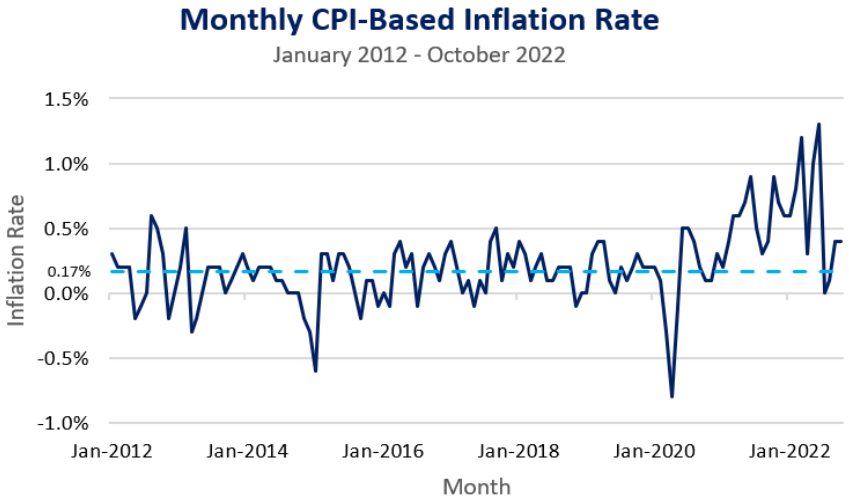

Figure 1: Monthly CPI-Based Inflation Rate; Consumer price index (CPI) databases

2.2 Other Indices

While general inflation can be indexed by the CPI, general inflation may not accurately represent inflationary pressures for all lines of insurance. Products such as homes, vehicles, and medical services all exhibit their own inflationary trends that can be indexed individually. When creating the CPI, the U.S. Bureau of Labor Statistics creates sub-indices for products and industries that are then weighted and combined into the CPI. These CPI subcomponents make strong indices for inflation because they are publicly available, updated monthly, and can be customized by a carrier to capture the risks associated with its lines of business. For example, a carrier could index inflation rates for coverages whose claims are tied to medical payments (worker's compensation, liability, personal injury protection, commercial auto, etc.) using the subcomponent of the CPI that tracks prices for healthcare-related services.

Indices unrelated to the CPI exist can also be used to track inflation:

- The Case-Shiller US National Home Index can be used to derive an inflation rate that is applicable to personal property insurance (Fred, 2022).
- The Commercial Property Price Index (CPPI) can be used to index inflation for both surety bonds and commercial property insurance (Green Street, 2022).
- The Manheim Used Vehicle index can be used to set inflation rates for comprehensive and collision auto coverages (Manheim, 2022).

It may be appropriate to use multiple indices to track different types of losses if a carrier's book of business contains multiple lines of business. Figure 2 shows seasonally adjusted inflation rates as calculated using the CPI, the medical component of the CPI, and the Manheim, Case Shiller, and CPPI indices. According to these metrics, inflation rates for vehicle, home, and commercial property values were higher than CPI inflation over the course of the past two years. This means that carriers writing in these lines are likely experiencing especially high inflation and can anticipate significant increases in claim amounts. Figure 2 emphasizes the importance of monitoring inflation through the index most applicable to each type of coverage.

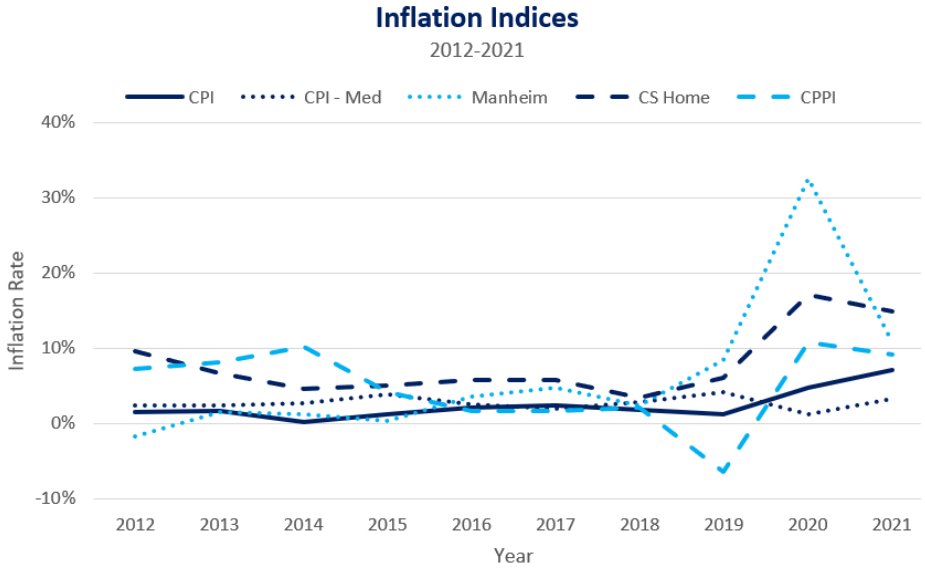

Figure 2: Inflation Indices; Consumer price index (CPI) databases; Manheim, Green Street; FRED

2.3 Social Inflation

Social inflation is a phenomenon where carriers' liability claims rise above general inflation due to unfavorable results in liability court proceedings. Legal proceedings that take longer than expected, increasing statutory limits on non-economic damages, and a rising number of outside jury awards all contribute to social inflation. With reductions to non-economic loss limits, claimants can receive more for subjective losses such as pain, suffering, stress, and inconvenience. These changes are increasing the number of 'nuclear' verdicts, which leads to excessive losses not accounted for in the standard ratemaking process. Figure 3 compares annualized loss rates for various liability lines of insurance between the periods of 2009 - 2014 and 2014 - 2018 (The Institutes, 2020). Social inflation has contributed to the significantly higher incurred losses in the 2014 - 2018 period. Note that these losses are not standardized for premium, meaning that an increased exposure base and general inflation have contributed to some of the increase in incurred loss.

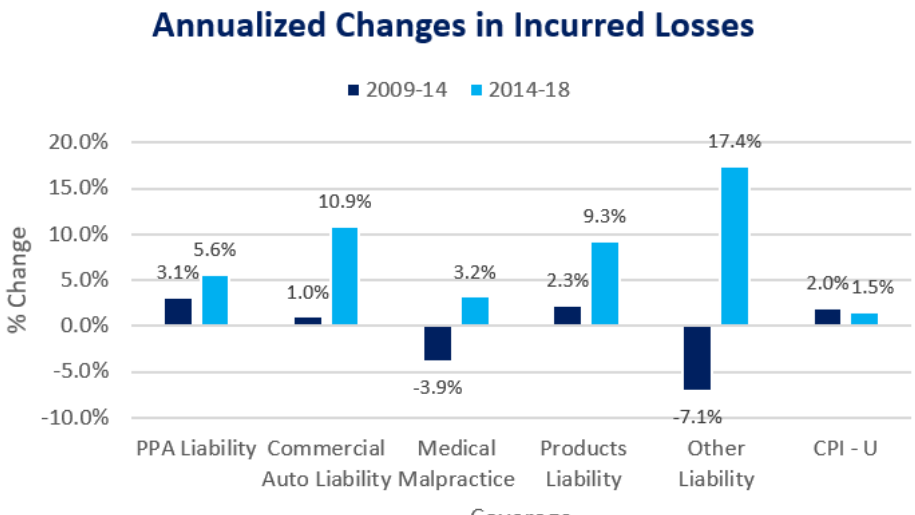

Figure 3: Annualized Changes in Incurred Loss; The Institutes

3. Shortages

In addition to being primary contributors to high inflation rates, labor and supply shortages further have additional consequences that could increase claim amounts and settlement time for WSI carriers.

3.1 Labor

Labor force participation reached its lowest point in well over twenty years due to the Covid-19 pandemic, as displayed by Figure 4.

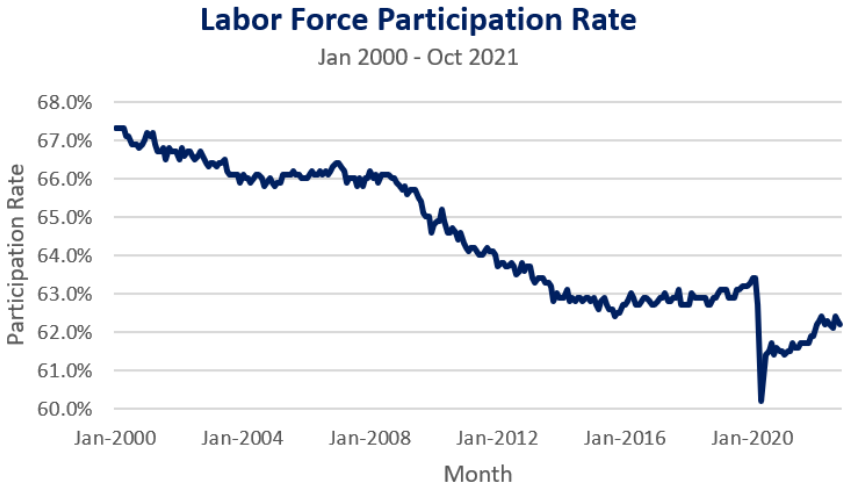

Figure 4: Labor Force Participation Rates; FRED

Despite rebounding to 62.3%, as of October 2022 the participation rate has yet to reach a pre-pandemic level of 63.4% (Fred, 2022). Because claims can only be settled as quickly as they are valued, worker shortages could result in slower processing times for claims. For an auto collision claim, an understaffed vehicle repair shop will take more time to get the carrier a quote. Delays in the reporting process introduced by worker shortage will likely create unexpected increases in claim settlement time and loss because the longer a claim is open, the more likely it is to develop complications or become litigated. It also seems plausible that shortages in ‘dangerous’ job fields could result in workers being overworked, stressed, and more prone to injury, thereby increasing the likelihood of claims. Those Americans that remain in the workforce have been

shifting roles. In 2021, 53% of Americans who quit their jobs did so for a career change (Parker and Horowitz, 2022). Short-tenured employees have significantly higher rates of injury than longer-tenured employees, driving up coverage costs (Valent Group) across numerous lines of insurance.

The labor shortage could also lead to internal inefficiencies for WSI carriers, as a decreased workforce participation rate could be indicative of a shallower talent pool. According to Jeff Rieder, the CEO of the AON subsidiary of The Ward group, ten years ago the "average turnover in the insurance industry was about 8 - 9 %, both voluntary and involuntary. Now, it's in the 12 - 15% range as people retire or leave the industry" (Schlenker, 2022). If a WSI carrier is understaffed, its ability to process claims is inhibited, which could result in inadequate rating, loss of business, and an increase in claims processing time. As a result, WSI carriers who want to limit their exposure to loss and lag increases attributed to internal shortages must prioritize worker retention and recruiting. Rieder also notes that while many companies budget for only a 3.5% to 4% merit-based pay increase, the reality is that the year-over-year merit-based pay trend is about 5% (Schlenker, 2022). Companies, who already tend to under-allocate funds for pay increases, should expect even higher wage increases to compensate for inflation.

3.2 Material

The presence of labor shortages, in conjunction with aging infrastructure and geopolitical factors, contribute to supply chain issues, which ultimately make it more difficult to transport materials. One industry experiencing significant labor shortages is trucking. According to the American Trucking Association, the United States is short around 78,000 truckers (Campbell, 2022). As a vital component of the supply chain, trucker shortages mean that material deliveries

are being delayed. While the trucker shortage is just one of many components that are causing material shortages, it demonstrates how labor shortages and material shortages are linked.

Perhaps the industry hit hardest by material shortages is construction. According to the U.S. Chamber of Commerce, a record 93% of contractors report they are facing at least one material shortage, with 34% of contractors reporting a shortage of steel and 31% reporting a shortage of lumber (Swanek, 2022). Supply shortages within the construction industry directly impact WSI carriers who engage in surety bonds and insure commercial real estate. With contractors requiring more time and money to complete their projects, the assumptions used to value surety bonds no longer reflect the current environment. If supply shortages interfere with a contractor's ability to complete projects to agreed-upon standards, surety carriers could expect an increase in both claim frequency and severity. Commercial auto insurance is another line affected by material shortages. Over the last few decades, computer chips have become a necessary component in vehicle manufacturing. The shortage of these chips has increased their price, which has increased the price of repairing vehicles. Chip shortages also result in a decreased availability of new vehicles, further driving up vehicle cost. Material shortages, because they can increase the price of insurable items and can result in an increased amount of time that claims remain open, contribute to the inflation of loss rates in the WSI industry.

4.1. Pricing

The trend component of the standard actuarial pricing method is meant to take the effects of general inflation into account by taking loss values from experience periods and projecting them into the future. This mechanism works under the assumption that losses will continue to grow at a similar rate to which they have grown historically. If inflation causes losses to grow faster than they have historically, calculated premiums may be inadequate for maintaining target

loss ratios. Due to the gap between when losses occur and the final claim payout, the inflation component of loss trends lags behind the most up-to-date inflation values. In addition, because claims data takes time to process, WSI carriers tend to rate using full policy years. If a carrier is rating for a policy to be effective in January of 2022, it may only use loss data from policy year 2019 and earlier (assuming rating occurs 6 months before inception). Between the end of the most recent policy year's exposure period and the time at which rating occurs, further inflation has taken place. Using a monthly index could allow analysts to quantify the amount of inflation that occurs in this time and fill these gaps.

Inflation indices can be fit with exponential curves to select a trend value based entirely on an index. Such a trend value is advantageous as it can incorporate the most up-to-date monthly inflation values, quantified by a relevant index. Loss data is often trended on an annual basis, making it less flexible and less representative of current inflationary trends. Using an index-calculated trend to supplement, support, or replace loss trend is a practice that can allow a WSI carrier the opportunity to better account for recent inflationary data into its pricing process.

4.2. Reserving

Meeting government capital standards, maintaining solvency, and calculating incurred loss values to be used in the pricing process all require adequate reserves. As with pricing, unpredictable increases in claim amount and settlement time hinder a WSI carrier's ability to set adequate reserves. The difficulties associated with reserving during times of high inflation are different for long and short-tail lines of business. Anticipating the effects of inflation on long-tail lines, such as medical malpractice, workers compensation, and cyber insurance, is difficult because the effects of inflation on policies written today will not be apparent until claims are settled. For short-tail lines, the effects of inflation on losses are already apparent because policies

written during this period of high inflation have already been settled. If a carrier for a short-tailed line is under-reserved, it can see that in its settled claims data, and respond with adjustments to its reserving process.

Under-reserving has the potential to cause long-tail lines to have larger increases in loss ratios because there is more time for inflationary effects to compound. However, if the tail is long enough and the inflationary period is short enough, it is possible that high inflation rates are negated long-term by periods of lower inflation levels. Additionally, in times of high inflation, long-tail carriers may under-reserve for annuitous losses, in which cases carriers can make up the difference gradually. Carriers who under-reserve a short-tailed line must immediately allocate funds to deal with the loss. Ensuring rate adequacy for both long-tail and short-tail WSI carriers will require innovation, potentially involving inflation indices, to deal with inflation-induced loss increases.

4.3. Book of Business

Inflation has had adverse effects on the entire U.S. economy. Prospective insureds, both new and renewing, who are facing their own difficulties associated with inflation, may be unwilling or unable to accept substantial rate increases. Faced with high rates, insureds may choose to shop around, even though rate increases are likely to be industrywide. WSI carriers should provide brokers and agents with tools (infographics, data sheets, trainings, etc.) that help them to justify high rates. Insureds who see CPI rate at around 9% may be confused as to why its carrier would use inflation to justify rate increases above 9%. Industry-specific inflation data, displayed through relevant indices, could be used not only in the rating process, but also to justify inflation-induced rate increases to insureds. It is the brokers and agents who foster a

relationship between carriers and insureds. As such, they should be equipped to articulate that inflation is an industry-wide problem.

While inflation may make it more difficult for WSI carriers to retain insureds, it is possible that net demand for un-admitted policies rises as insureds are pushed out of the admitted market. Restrictive legislation makes it significantly more difficult for admitted carriers to set adequate premiums. States enforce strict guidelines that restrict how often and how severe rate increases can be for admitted carriers. These restrictions, in addition to limiting premium, make the rating processes longer, as admitted carriers must deal with objections and rejected filings from the Department of Insurance. If admitted carriers are unable to increase premiums enough to cover inflationary loss, they may be forced to tighten their underwriting standards and deny coverage to insureds that they would have been able to cover if not for statutory limitations. This opportunity provides a silver lining for WSI carriers amidst the difficulties associated with high inflation.

5. Conclusion

The mounting pressure of inflation, further compounded by labor and material shortages, makes future increases in claim value and settlement time seem inevitable. If WSI carriers fail to adapt their pricing and reserving procedures to accommodate high inflation, they risk inadequate premiums. The coming wave of premium increases will put pressure on agents and brokers to maintain WSI books of business. Despite all the inflation-induced difficulties facing WSI carriers, with its low levels of regulation, the WSI industry is in an advantageous position over the admitted market. A carrier in the admitted market must have all rate increases approved, meaning it is limited in its ability to set adequate rates. Without such limitations, WSI carriers can adapt their rating practices to incorporate inflation data from relevant indices in a way that

aligns with their unique book composition. A WSI carrier who can innovate its rating process and capitalize on a potential influx of business from the admitted market could come out of this period of high inflation in a better position than it had started.

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Women in Insurance: The Arduous Climb Up the Corporate Ladder

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1. Introduction

From the instance a woman enters an interview for her hopeful future occupation, career progression obstacles are faced. From the makeup upon her face to the shoes worn, a woman is analyzed from head-to-toe. Will she appear feminine to an extent that causes the interview moderator to impose the stereotypes of corporate America upon her within the hour duration? Will her familial obligations lead to an understood yet silent rejection prior to exiting the meeting? Such career progression obstacles may persist throughout her career if corporate America does not evolve. With disproportionate pay and promotions, women in insurance are bound to face this arduous climb to equal opportunity.

2. Background

2.1 Obstacles as women in the workplace

Women face obstacles in the workplace that men simply do not. Whether it be the lack of support at firms or societal expectations of raising families, women are not seen as equals with their male counterparts. According to a 2016 survey conducted by Ernst & Young Global Limited, while 44% of men surveyed believe a barrier to women obtaining leadership roles is due to conflicts with raising a family, only 24% of women believe the same; additionally, 43% of males hold the opinion that there is a shortage of qualified female candidates to climb the corporate ladder, whereas a mere 7% of females believe the same (Frazer, 2018). With some men being raised to see women as of little value, the stereotypes instilled in men contribute to a wage gap and a minimal number of women as senior leaders, causing women across the workforce in corporate America to question if their work ethic will be sufficient to defy the odds and be a rare case.

2.2 The wage gap at a glance

Women are unable to overcome the inequities in wage offers regardless of educational achievements made. In fact, both "education and generational differences do not overcome the fundamental inequity – AAUW [American Association of University Women] found that one year after college graduation, female degree-holders were paid only 82 percent as much as their male counterparts" (Frazer, 2018, p.14). Even with identical qualifications, across all industries, women continue to experience a wage gap that is seemingly impossible to minimize.

2.3 Women in leadership roles

The ability to enter senior leadership roles is an unimaginable feat. According to the World Economic Forum, women "globally are only 28% as likely to reach leadership positions as men. Based on current trends, it will take 117 years to achieve global gender parity" (Fraser, 2018, p.7). While women are as capable as men, industries are not implementing the initiatives necessary to achieve gender parity. McKinsey&Company reports that "one in five C-suite leaders is a woman, and fewer than one in 30 is a woman of color" (Krivkovich et al., 2017, p.2). Rising to senior leadership as a white woman is a daunting feat, yet for women of color, this becomes a statistically rare dream that not even a white woman could imagine. Across all industries, women in leadership roles are few and far between.

3. Women in insurance

3.1 Progression, or lack thereof

While the wage gap is a continual issue globally, many findings are discovered when examining the progression, or lack thereof, within the insurance industry. STEMconnector

reports that *PayScale* states the "financial and insurance industry has a larger gender pay gap than any other sector" (Fraser, 2018, p.14). According to the Bureau of Labor Statistics (BLS), in 2018, women in insurance earned 62 cents per dollar earned by their male counterparts, which is lower than the 1951 average of 64 cents (Fraser, 2018).

While women hold a greater proportion of positions within the insurance industry, this does not equate with the progression of women in other industries. Based on data from the Current Population Survey, women accounted for approximately 47% of workers across all industries as of 2021 (U.S. BLS, 2021). Of the 2.8 million roles in total, results also uncovered that approximately 58.9% of the occupations available within the insurance industry were held by women (Insurance Information Institute). Table 1 shows the breakdown of women employed by occupation, which displays that women hold the majority of three categories (U.S. BLS, 2021).

Table 1: Women in insurance as of 2021 by occupation (U.S. BLS, 2021).

Occupation	Total Employed (000)	Percent of Women
Insurance sales agents	600	50.0%
Claims adjusters, appraisers, examiners, and investigators	330	58.2%
Insurance claims and policy processing clerks	257	78.2%
Insurance underwriters	128	61.4%

Although the distribution of women is more than equitable in insurance at large, the lack of representation arises and increases exponentially as one glances upward the corporate ladder. Senior leadership positions within insurance are where the inequities become abundantly clear, with women only occupying "19% of board seats, 11% of named inside officer positions, and 12% of top officer positions such as CEO, COO and CFO," as well as 1% of insurance firms

possessing a woman CEO (Fraser, 2018, p.3). Despite making up the majority of the insurance workforce, women hold very few positions of significant decision-making power. While apparent for women in the workplace across all industries, the opportunity gap for women in insurance is especially significant.

3.2 Racial representation and discrimination

The industry needs to fit the insurance needs of the diverse society at large. As STEMconnector reports, the "U.S. insurance industry reflects the demographics of the national workforce as a whole – an increasingly diverse and aging population" (Fraser, 2018, p.14). As seen in Table 2, the percentages of total employment indicate the racial representation within the insurance industry as categorized by occupation (U.S. BLS, 2021). For example, Asian insurance underwriters were adequately represented in 2021. As noted in Table 2, this survey demonstrated that 7% of insurance underwriters were Asian, and 6.6% of the total workforce was Asian (U.S. BLS, 2021). With these proportions being nearly equivalent, this reflects that the Asian population was well-represented within the occupation. However, the data for the Hispanic population reveals a different story, with only 9.1% employed as underwriters while 18% of the total workforce was Hispanic (U.S. BLS, 2021).

Table 2: 2021 employment by occupation, sex, and race (U.S. BLS, 2021).

		Percent of Total Employed			
Occupation	**Total Employed (000)**	**Women**	**Black**	**Asian**	**Hispanic**
Total workforce, 16 years and over	152,581	47.0%	12.3%	6.6%	18.0%
Insurance sales agents	600	50.0%	11.8%	4.1%	16.5%
Claims adjusters, appraisers, examiners, and investigators	330	58.2%	16.7%	4.3%	14.6%
Insurance claims/policy processing clerks	257	78.2%	25.3%	1.9%	19.5%
Insurance underwriters	128	61.4%	12.0%	7.0%	9.1%

The percentages in Table 2 do not necessarily mean that racial representation in insurance occupations as of 2021 was adequate. Even if the above reflects a sufficient proportion of multiracial employees by occupation, this does not equate with proper treatment of minority groups while holding such positions at insurance firms. In 2020, Jackson National Life Insurance was court ordered to pay $20.5 million to "21 complaints and furnish other relief to settle EEOC's claims in a race, national origin, and sex discrimination and retaliation lawsuit brought by the U.S. Equal Employment Opportunity Commission…" (EEOC, 2020). The firm had permitted a hostile work environment for African American women employees; some were "referred to as 'lazy,' had stress balls thrown at them, and were subjected to racially demeaning cartoons" (EEOC, 2020). The firm blatantly discriminated against African American women by paying them less than male counterparts, consistently denying them well-deserved promotions and advancing less qualified white men (EEOC, 2020). The Jackson firm demonstrated the mistreatment of Black women in the insurance industry.

3.3 Wage gap for actuaries vs non-actuaries

While occupations within the insurance industry are prone to inequalities across gender leading to a wage gap, the same cannot be said for all professions within the field, e.g., the actuarial career path. Within *The Geneva Risk and Insurance Review*, four occupations within insurance were selected to explore wage-offer disparities by gender. Such professions are as follows: underwriters, sales agents, claims adjusters, and actuaries. Although some may make generalizations regarding the insurance industry's treatment of women, in comparison to the other jobs in question, actuaries "exhibit the least amount of gender inequality across the board, with demographic responses suggesting competitive pressures across states yielding the least wage-offer inequality across gender" (Butler & Lai, 2022, p.1).

This distinction between these occupations emerges due to the attributes of each role. The modest inequity in the actuarial wage gap arises from starting salaries being rather standardized. Whereas, credentials and skillsets needed for other occupations are more subjective, contributing to wage-offer disparities. The modest wage inequities amongst actuaries can be explained by two factors: “Actuaries’ credentials are readily established (degrees, exams passed). In addition, actuaries do not interact with customers, thus, consumer tastes discrimination and social employment networks do not play a role in wages” (Butler & Lai, 2022, p.32). With the correlation between actuarial examinations and starting salaries, in conjunction with the lack of face-to-face time with consumers at public firms, the actuarial wage gap is not as substantial as that of the insurance industry at large.

Although the actuarial profession is favorable in terms of wage-offer equity, other occupations see significant inequities. As found in the previous study, underwriters, sales agents, and claims adjusters have considerable wage-offer inequities (Butler & Lai, 2022). Insurance sales agents exhibit the most significant inequality in wage-offers because “Unlike actuaries, credentials for ‘insurance sales potential’ are very hard to clearly articulate” (Butler & Lai, 2022, p.32). In fact, women “working full-time as insurance [sales] agents – both captive and independent – earned $641 per week in 2012, compared to a median $1,026 in weekly income for men” (Bronson, 2014). According to 24/7 Wall St., insurance agents experience a wage gap larger than any other occupation (Fraser, 2018). While wage-offer inequities may come from pure discrimination in viewing males as of greater value to the role, this is not the only factor. In reality, women “agents may have less freedom to travel because of perceived family responsibilities – though this is not discrimination at the firm or industry level. Rather, societal-norms regarding childcare, or females’ choice to take [care] for their young children, may reflect

another form of cultural discrimination" (Butler & Lai, 2022, p.32). Additionally, the *Insurance Journal*'s 2016 Agency Salary Survey uncovered sizable inequity within the property and casualty insurance industry, relating to non-actuarial roles. Table 3 demonstrates the gender disparity and controlled pay gap with mean management salaries; in fact, with an equivalent number of women and men respondents of the survey, it is computed that male commercial lines managers earned approximately 70.4% more than women in identical roles (Wells, 2016).

Table 3: Average management salaries by occupation and gender (Wells, 2016).

Occupation	Female	Male
President/CEO	$ 146,702	$ 185,827
Agency owner/principal	$ 121,569	$ 183,242
Commercial lines manager	$ 74,239	$ 126,529
Personal lines manager	$ 66,500	$ 92,375
Office manager	$ 69,278	$ 152,000

Whether the inequity arises from a lack of standardization in starting salaries or from societal stereotypes, other occupations within insurance suffer greater discrepancies in compensation than actuaries.

4. Women in other industries: *Leading by example with best practices*

Given the little progress made for women within insurance occupations, some industries, like banking, have implemented initiatives to address such disparities. In 2015, the 2030 Agenda for Sustainable Development, consisting of 17 objectives known as UN-Sustainable Development Goals (SDGs), act as an urgent and universal call to action (United Nations). In 2020, the House of Representatives adopted House Resolution No. 565, in which the SDGs were adopted as the "framework of legislative measures to be crafted and enacted in the Eighteenth Congress" (SDS Admin, 2020).

While there is a significant need for gender diversity, the insurance industry's support of SDG 5, regarding gender equality, has only begun recently. In fact, the "goal has started receiving support from some insurance companies only in 2019" (Birindelli & Iannuzzi, 2022, p.306). Whereas, the progression of women in the banking industry is apparent in their greater commitment to SDG 5 than the insurance industry. According to Birindelli and Iannuzzi (2022), with a sample of 1,427 banks and 637 insurance companies, SDG 5 is supported more by banks than insurance firms; the percentages of backing were 37.15% and 27.34% for banks and insurance firms, respectively (p.313). With the achievement for gender equality being the fifth of 27 SDGs (UN Women, 2022), it is imperative that the insurance industry work toward this objective.

5. Next steps: *Diversity, equity, and inclusion*

A crucial objective of insurance companies nationwide is to implement diversity, equity, and inclusion (DEI) strategies. At the 2016 Business Insurance Diversity & Inclusion Institute Leadership Conference, eight insurance-industry CEOs crafted the following commitment statement: "Diverse and inclusive teams have proven to be more effective, and able to create better economic and social outcomes…From individual company programs to industry-wide initiatives, insurance businesses are committed to promoting and advancing diversity in their business culture – in every sector and at all levels" (Insurance Information Institute). Since the industry preaches the need for DEI initiatives, methodologies are implemented in hopes of inhibiting gender discrimination. For example, the Insurance Industry Charitable Foundation (IICF) has made women in insurance a priority through an annual initiative. Initially established in 2013 as the Women in Insurance Conference Series, the IICF created one of the most successful DEI initiatives in insurance; with more than 8,000 participants (IICF Inclusion in

Insurance Forum), its success is measured in how many individuals they have been able to educate. The more DEI education provided within the insurance industry, the more likely the workforce within it will witness women climb the corporate ladder.

A diverse team consisting of women leaders can provide benefits to the firm at large. According to Birindelli and Iannuzzi (2022), “Research by the Swiss Re Institute, focused on a sample of 170 global insurance, reinsurance, and insurance brokerage companies from 2002 to 2019 and based on Refinitiv ESG data, finds that a higher share of women on company boards in C-suite positions is associated with a return on equity (ROE) overperformance” (p.193-194). Similarly, reports by McKinsey and Credit Suisse have argued that firms with women in positions with decision-making power tend to achieve greater market returns and profits, in comparison to firms with males in such roles (Fraser, 2018). If women were provided with identical resources necessary to climb the corporate ladder as men, and if society were to eliminate biases regarding women’s capabilities, firms would reap the benefits. Initiatives to allow women to enter leadership positions include woman-to-woman mentorship programs, as well as seminars constructed for women to become equipped with the negotiation tactics necessary to seek promotions and raises that they deserve.

6. Conclusion

Both the insurance industry and the world at large must address the lack of gender parity. With stereotypes instilled in the minds of many, women consistently face obstacles and are not given adequate compensation and opportunity. While wage gaps are evident across all industries, some including banking, have proven to be more driven in implementing initiatives to address

the issue. This reveals that the insurance industry must strive for women progression, as they have fallen behind other fields, creating one of the most substantial wage discrepancies.

Professions within insurance, such as actuaries, provide hope that global gender parity may not take the 117 years that the World Economic Forum currently projects (Frazer, 2018). With initiatives built upon core values of DEI, in conjunction with hard approaches and legislation, the insurance industry can help decrease the wage gap and increase the number of women in leadership roles. Ultimately, if given opportunities to rise to coveted C-suite positions, women can make dynamic contributions within the workplace, allowing firms to realize profit margins more substantial in size than ever before.

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