CAS RESEARCH BRIEF

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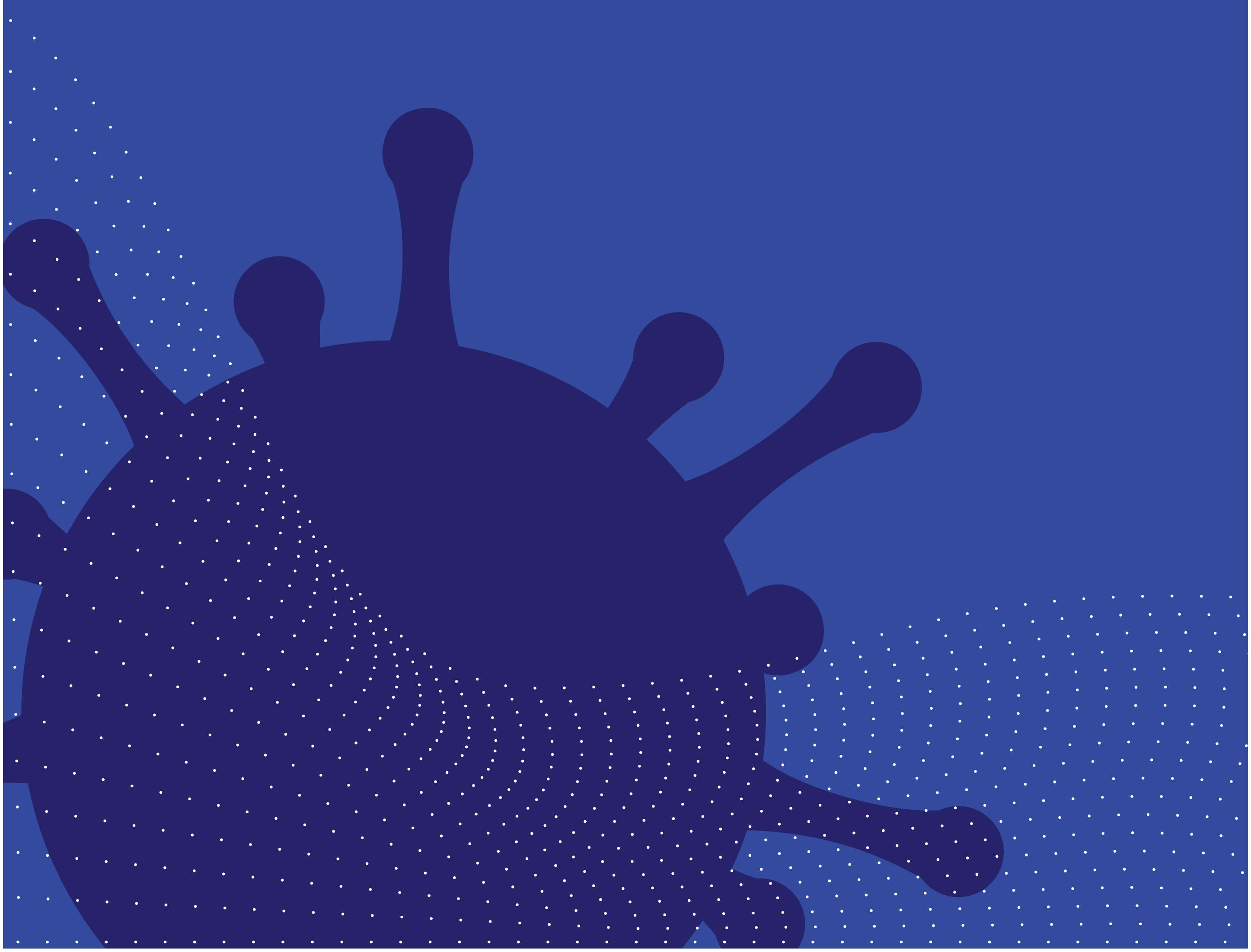

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COVID-19: The Property-Casualty Perspective

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1 Introduction

The world is going through an extraordinary event. Since it first appeared in Wuhan, China, in late 2019 ("First Covid-19 Case Happened in November, China Government Records Show - Report" 2020), the coronavirus has spread rapidly to most of the world's population. Indeed, one of the difficulties of writing an article like this is to keep up with the pace of change. An earlier draft had included specific references to the current number of countries and individuals who had been affected. It took only a few days for those numbers to be badly short of the mark.

Though the pace and character of response has varied, there are now a variety of travel restrictions in place in an effort to contain the spread of the disease. Many businesses have asked employees to work remotely where possible. Events and large public gatherings have been cancelled. The National Basketball Association — after having a player test positive — has suspended its season (Cacciola and Deb 2020). England's Premier League has suspended football play ("Premier League Suspended as Coronavirus Continues to Trouble Football" 2020). Every Walt Disney theme park in the world will close for several weeks (Barnes 2020).

When estimating what is likely to happen in the future, it is common practice for the actuary to look at what has happened in the past. The question naturally arises: Have we ever seen anything like this before? Table 1 shows some historical data.

Table 1: Notable pandemics

Name	Numbers affected
Spanish flu (1918)	~100,000,000
Asian flu (1957)	~2,000,000
Hong Kong flu (1968-1969)	1,000,000
HIV/AIDS (1981-present)	>32,000,000
SARS (2002-2004)	774
H1N1 (2009)	151,700 – 575,400

An oft-cited event, the Spanish flu epidemic is much like COVID-19 in that the disease was similar to seasonal flu and worldwide in scope. At the time of the Spanish flu pandemic, however, the property-casualty insurance industry looked very different than it does today. Workers' compensation coverage was rather new in the United States, with the first states having enacted legislation in 1910 and ten states having no such legislation at all (2020a). Professional and commercial general liability coverages — where they existed at all — were niche coverages. It would not be until after the 1940s that these lines grew to anything like they are today in the U.S.

The 1980s saw public awareness of the HIV pandemic. Although this has been a deadly and persistent presence, HIV's speed of transmission is slower than for COVID-19. Moreover, the different mode of transmission — blood, saliva, and other bodily fluids — means that the risk of spread in a group of unacquainted individuals is substantively lower. Some behavioral changes took place, but cancellation of large events and cessation of public congregation were not features of the spread of HIV.

Severe acute respiratory syndrome (SARS) and Ebola were significant, but largely local, of shorter duration and affected areas with less developed P&C insurance markets.

Considering that, it is fair to say that P&C actuaries have not seen anything like this. How, then, do we begin to build models or forecast the future? In considering the impact to the P&C insurance industry, we will look at this from two different perspectives.

First, we will examine the proximate impact of the disease itself to an insurance policy. That is, which coverages respond directly to COVID-19 as a cause of loss and how do they respond? Second, we will contemplate the indirect impact. It is already evident that this phenomenon will leave few aspects of our lives untouched. What does the P&C insurance market look like in this new normal?

2 Proximate impact

The proximate impact of COVID-19 comes in six non-life insurance products:

1. Health
2. Workers' compensation
3. Liability
4. Cyber liability
5. Event cancellation
6. Property

2.1 Health

The impact here should be obvious. Indications are that mortality and morbidity in the short term will increase, particularly for at-risk individuals. Further, as the attention of health care providers is consumed with the dedication of resources for a spike in demand, other services will be curtailed, delayed, or more expensive.

2.2 Workers' compensation

For workers' compensation, the increase in proximate risk will be seen in employees who are more exposed to the disease. This includes health care workers, but this also means anyone whose work cannot be done remotely. This would be restaurant, retail, manufacturing, and even toll booth workers.

Even among those able to work remotely, workers' compensation may come into play. Although normal commuting is beyond the scope of a workers' compensation policy, irregular travel, such as to conferences or client visits, is not. Workers who traveled in the recent past are likely to have been at higher risk of infection from heightened contact. Though virtually all major conferences have been cancelled, employees who attended events prior to cancellations may have workers' compensation claims. Indeed, a single employer is associated with more than 100 cases (McDonald 2020) from a single conference sponsored by the company.

Workers' compensation must now deal with an exposure that no one could have foreseen. Millions of employees are now working from home. This means an environment over which the employer has virtually no control. Desks and chairs may not be ergonomically designed, and some workers may suffer from physical complaints. Will they be able to recover successfully under current workers' compensation statutes? It's hard to know, but it is certain that some will try, generating a new class of claim. This assumes that employees have dedicated workspaces to begin with. Many laptops are now sharing space with other residents in a home that didn't contemplate such use. Trip hazards and other new distractions mean a changing risk landscape for office workers.

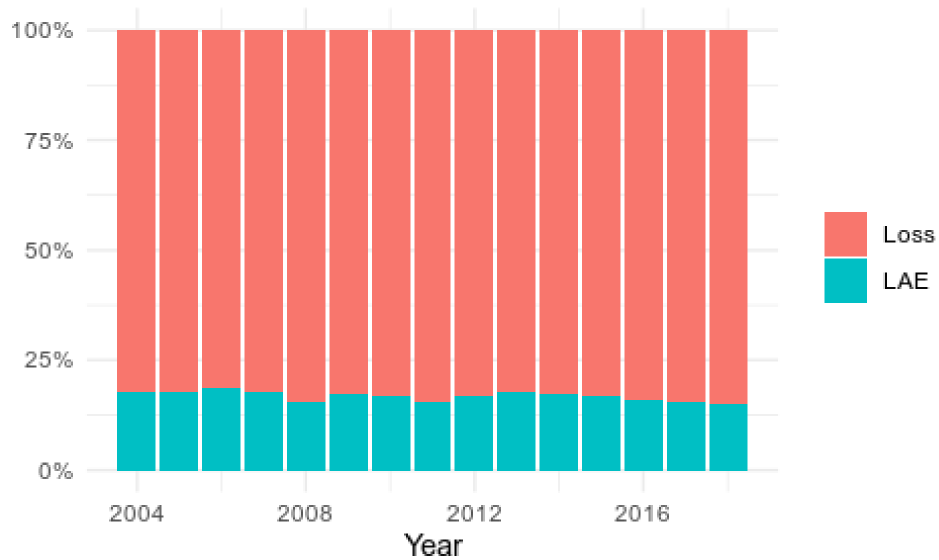
2.3 Liability

Apart from exclusions — and there are rather a few — general liability coverage will respond to any plaintiff's assertion of financial responsibility on the part of the insured. The classic example is a customer who falls, sustaining injury, on premises owned or maintained by the policyholder. More broadly, whenever there is a financial loss to a claimant and the insured may be found to be tortiously responsible, the coverage will respond.

Here is how this may come into play with COVID-19: A business operator who places customers in a situation where their exposure to the disease is heightened may be found liable for the risk. In the extreme, someone who contracts an illness through circumstances largely within control of the business may attempt to hold the business owner responsible. Indeed, there is already such a case in the press. A cruise ship was held at sea after 21 passengers tested positive for COVID-19 (Guzman 2020). A couple has filed suit on behalf of themselves and other families, seeking damages of $1 million ("Grand Princess Cruise Couple Sues over 'Lackadaisical' Coronavirus Response" 2020).

Whether any such suits go to trial and prevail, they will still generate cost for the insured. Most general liability policies provide coverage for the cost to mount a defense against a suit. The legal cost element of these loss adjustment expenses (LAE) is a material one. As Figure 1 shows, this element has been greater than 10% of the total loss and LAE amount. That is to say, the cost of defending these suits is a material element for insurers.

Figure 1: LAE portion of total loss



2.4 Cyber liability

As people decrease their engagement with the physical world, their presence online, in the form of communication, commerce and business transactions, increases. This presents a unique opportunity for malefactors who want to profit from the world's misfortune. Cyber criminals can be expected to increase their attacks, particularly on a substantial portion of the workforce who are no longer operating within the secure confines of their offices. Home wi-fi routers will not be standard across the employee base and neither will they have the same protections as corporate networks. Moreover, home bandwidth will be shared with everyone else in the house. One can scarcely assume that every employee, as well as every employee's family member, will exercise prudent access to the internet.

2.5 Event cancellation

Event cancellation coverage provides financial recovery for promoters of large events like concerts, conferences, and sporting events. Events range from very small, like weddings, to very big, like the Olympics. Recoveries depend on the specific coverage and may be for costs of the event or its potential profits. The coverage triggers are often weather-related and contemplate natural events that prevent an event from taking place. Coverage may also be triggered by the non-availability of a key individual. Coverage is not triggered by poor sales; this is an obvious safeguard to ensure that it is a viable product that cannot be exercised after poor planning or business decisions by the insured.

As an example, the South by Southwest Conference and Festivals had event cancellation insurance in place, but their policy had an exclusion for outbreaks of disease. The absence of such coverage means that the organizers are directly responsible for the financial loss. Interestingly, one may speculate that if the closure had come at the behest of civil authorities, the event cancellation coverage *would have* responded. The key difference is the extent to which cancellation is or is not within the control of the insured.

The potential impact is massive. The Tokyo Olympics are believed to be insured for around $800 million (Osental 2020). However large that sum may be, it is only a fraction of the estimated investment from the host country (Hussain 2020), which is as much as $12 billion. It will be interesting to observe the changing policyholder expectations and available coverage terms over the course of the next 12 to 18 months.

2.6 Property

Damage to property that directly results from the virus is not possible, however, most commercial property policies contain coverage for business interruption. This will compensate an insured for loss of revenue, but only if the interruption is a result of a covered cause of loss. These tend to be restricted to events like extreme weather, earthquake, or fire. Disease outbreak is generally excluded, but this may not be the end of the story. The New Jersey legislature is considering a bill to force insurers to pay business interruption claims despite the exclusion (Miscioscia and Maniloff 2020). This legislative action may be pursued in other U.S. states. Even if enacted, that is unlikely to be the end either as insurance companies will undoubtedly challenge the legitimacy of such laws in court, a process which could take years and cost significant sums.

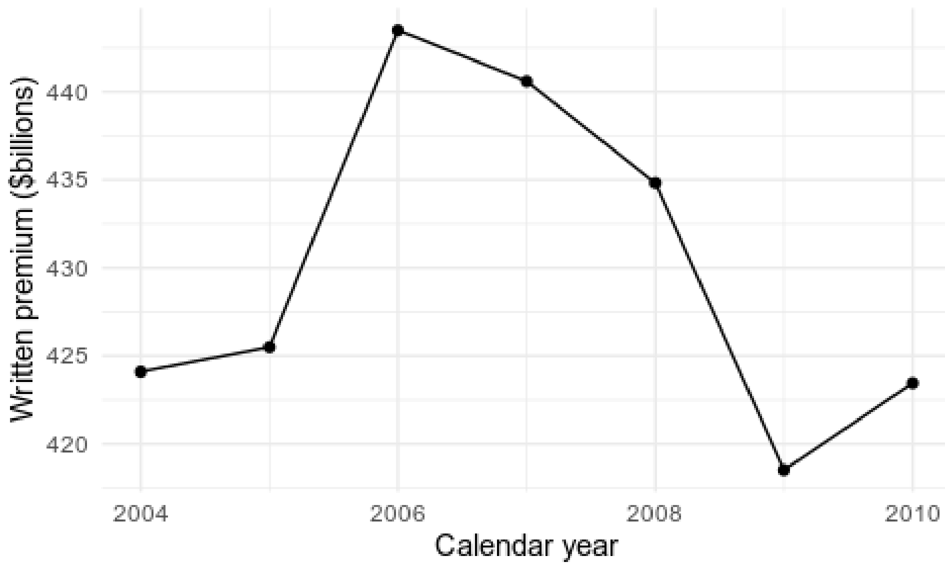
The picture for personal property could be interesting. More residents staying at home could mean more attention paid to smaller nuisance claims like water damage. Additionally, there are some ancillary coverages such as the minor amount (typically $500) available for credit card or check fraud. As noted earlier, cybercrime can only be expected to increase. Finally, although most people are limiting contact to others, there remains a possibility that someone may be exposed to the virus through personal contact with a homeowner. Just as plaintiffs may seek recovery under a company's general liability policy, a homeowner may be the target of a suit that would be covered under the liability portion of their homeowner's policy.

3 Indirect impact

We can expand our thinking to the way in which COVID-19 will affect the broader world and what this means for P&C companies. The cessation of travel and public activity has already led to material contraction of the world's economies. For insurers, reduction in economic activity generally means reduced revenue, but also reduced risk. Layoffs are targeted at employees with shorter tenure, and therefore less experience. Fewer cars on the road mean fewer accidents. Fewer customers in stores mean less opportunity for bodily injury. Of course, there are offsetting elements. Workers in fear of losing their jobs may try to use workers' compensation as a wage replacement. Abandoned properties are not as well maintained, and necessary car repairs are postponed. Is it possible to speculate which effects will dominate?

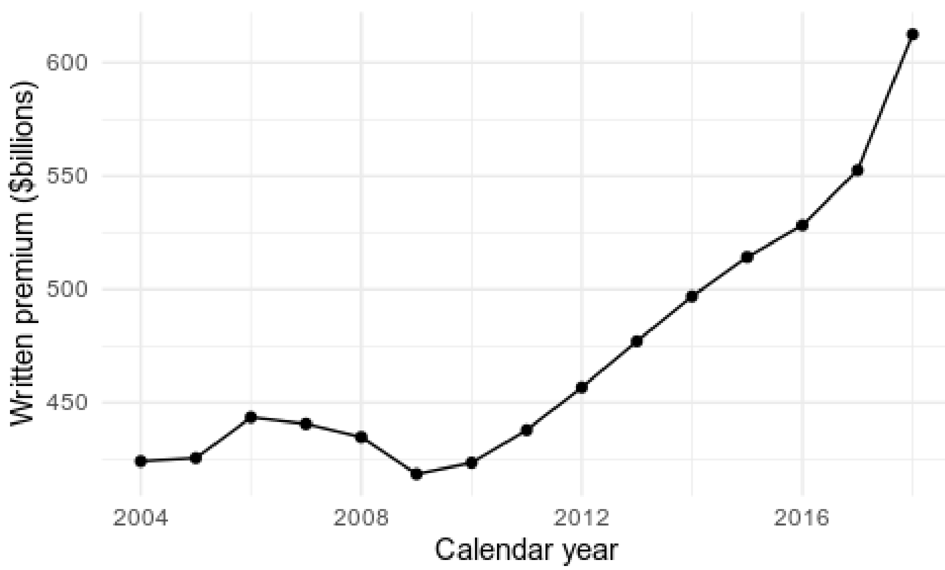
The financial crisis that took root in 2008 is an interesting case to study indirect impact. Created using data from the Insurance Information Institute (2020b), Figure 2 shows that premium volume had already begun to decline in 2006, dropping a bit more sharply from 2008 to 2009, before rebounding in 2010. Clearly the broader economy had an impact on the size of the insurance market.

Figure 2: Premium volume between 2004 and 2010



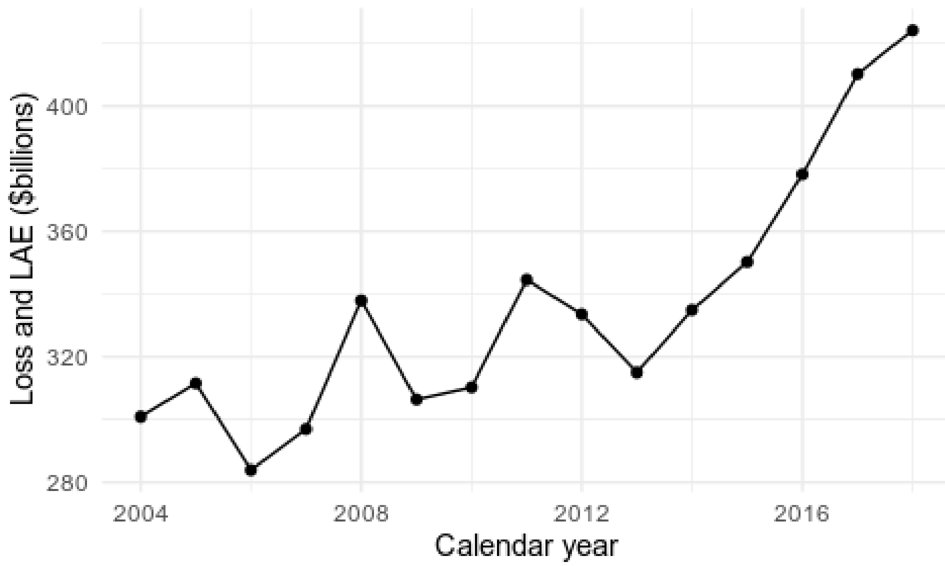
However, note what happened in the subsequent years, shown in Figure 3. Against the backdrop of the subsequent decade, the revenue impact of the financial crisis seems minor.

Figure 3: Premium volume between 2004 and 2018



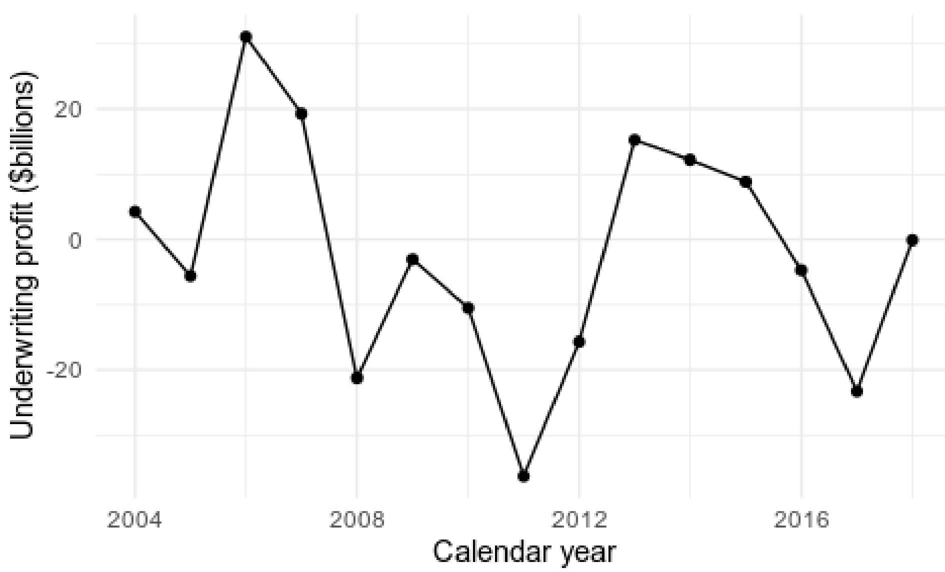
Of course, insurers also pay for losses. These dropped from 2008 to 2009 as reduced economic activity meant less exposure to claims, consistent with our suppositions above.

Figure 4: Losses and LAE between 2004 and 2018



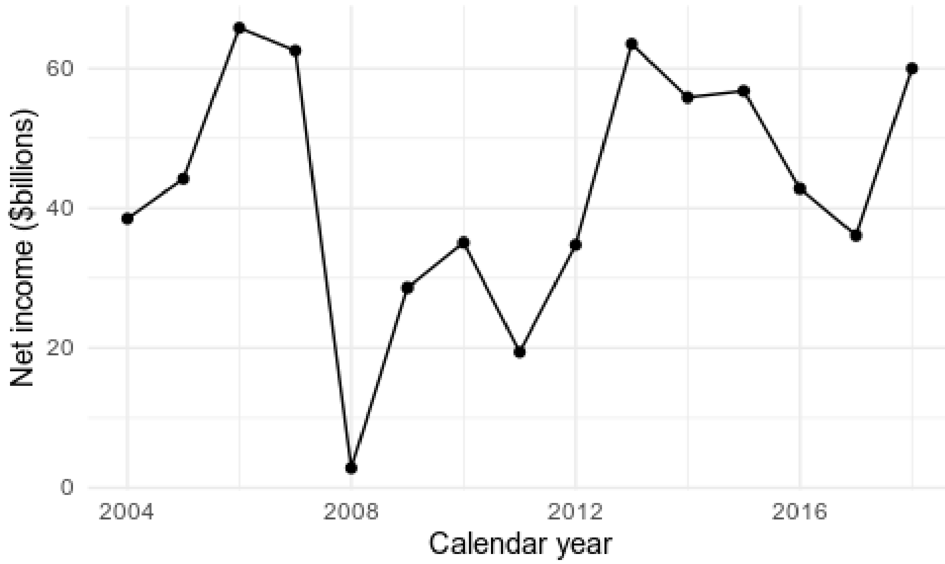
This time series in Figure 4 looks like what we see in Figure 3. Which effect was more significant? The difference between the two is the underwriting income, which we show in Figure 5. We see that this was already trending down starting in 2006, prior to the onset of the financial crisis.

Figure 5: Underwriting income between 2004 and 2018



The loss ratio does not consider investment income, however. Insurers hold premium in the financial markets and have the opportunity to earn income before claims need to be paid. These assets took a hit as financial markets suffered in 2008. In Figure 5, we can observe this. Investment losses exerted substantive downward pressure on insurers' net income, but it remained positive overall for the industry and recovered in the following year. One may consider the years between 2008 and 2012 as exerting meaningful headwind on insurer profits, but not something that removed them altogether.

Figure 6: Net income for the insurance industry



Will the industry experience something similar in 2020? It is impossible to say. We are well into unknown territory and events continue to evolve by the day. Having a sense of what is possible, though, offers us a place to begin reasonable estimation.

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