MILLIMAN RESEARCH REPORT

Milliman Retail Cost of Risk

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Amy Angell, FCAS, MAAA

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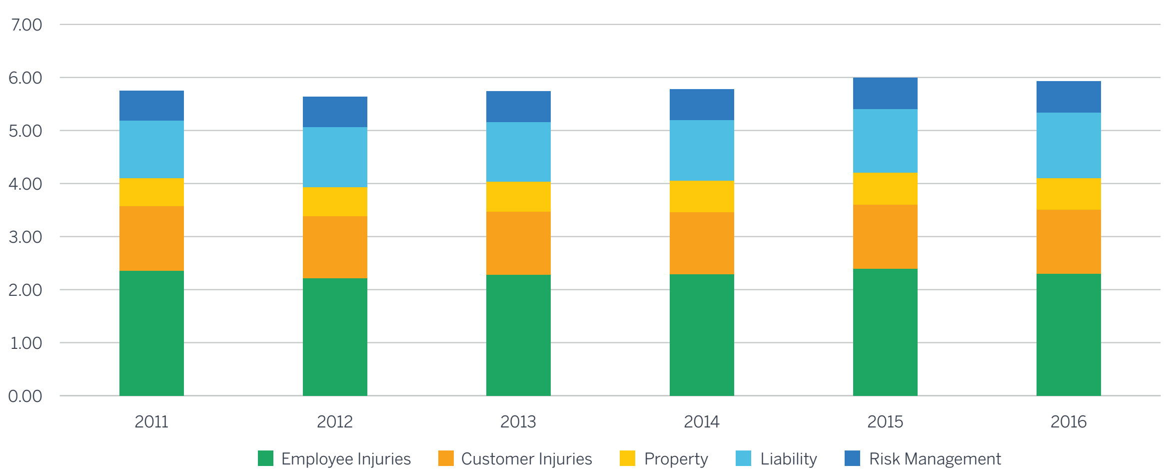
Executive summary

With retail sales in the United States projected to reach nearly $4 trillion[1] in 2016, the cost of risk is estimated to be $23 billion. For 2016, the cost of risk for U.S. retailers is projected to average $5.93 per $1,000 of sales. The cost of risk is a means of measuring the liabilities retailers are exposed to in the course of doing business, and includes employee and customer injuries, lawsuits stemming from business operations such as employment practices, and property and inventory losses from weather events, thefts, and fires.

Key findings of this report include:

- The average cost per household is $187 per year, or about the cost of one week of groceries for a family of four. This means that we could feed everyone in the United States for a week on the annual retail cost of risk.
- Retail profit margins vary by sector, from 2.0% of sales to 6.5% of sales.[2] Managing the cost of risk is therefore critical to maintaining profit margins, particularly for high-volume and low-margin retailers such as grocery stores.
- Workers' compensation costs (the cost of workplace injuries) represent the largest single expense, at approximately 40% of the total. Approximately 4.0% of retail employees are expected to file a workers' compensation claim in 2016.
- General liability risks (the cost of customer injuries) represent the second largest expense, at approximately 20% of the total. More general liability incidents (approximately one for every 500 people in the United States) are expected to occur in 2016 than workers' compensation incidents.
- Cyber risk is a rapidly rising cost, and it carries the potential for catastrophic claims and reputational damage, as well as significant cost and inconvenience for customers.

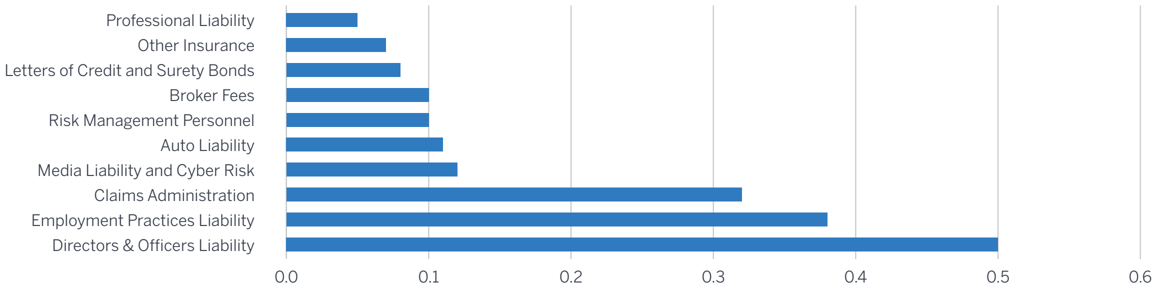
FIGURE 1: RETAIL COST OF RISK (PER $1,000 OF SALES)



1 U.S. Census Bureau. Monthly & Annual Retail Trade. Retrieved July 8, 2016, from http://census.gov/retail/index.html.

2 Damodaran, A. (January 2016). Margins by Sector (US). NYU School of Business. Retrieved July 8, 2016, from http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/margin.html.

FIGURE 2: PROJECTED OTHER LIABILITY AND RISK MANAGEMENT COSTS FOR 2016 (PER $1,000 OF SALES)

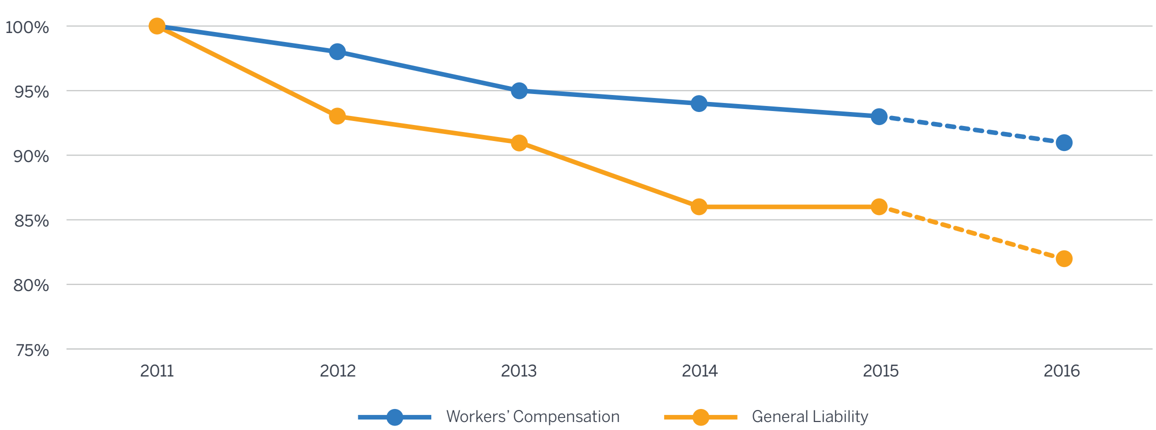


Cost trends

Workers' compensation and general liability claims represent over half of the annual outright costs, and require significant management costs from claim administrators, risk management, safety personnel, and legal resources. Over the past five years, the workers' compensation and general liability costs have remained relatively consistent overall, as a percentage of sales. The steady cost levels, however, belie the underlying frequency (number of claims per employee or customer) and severity (average cost per claim) trends.

In our benchmark data set, workers' compensation frequency decreased an average of 1.9% a year from 2011 to 2015. General liability frequency decreased an average of 4.4% a year over the same time period. The graph in Figure 3 compares the frequency level for each exposure over time, relative to the 2011 starting point. (Both trend lines are expressed relative to payroll and sales in 2015 dollars, to remove the impact of wage inflation and the consumer price index on the annual changes.) We project claim frequency to decrease for each exposure in 2016.

FIGURE 3: CLAIM FREQUENCY (RELATIVE TO 2011 LEVELS)



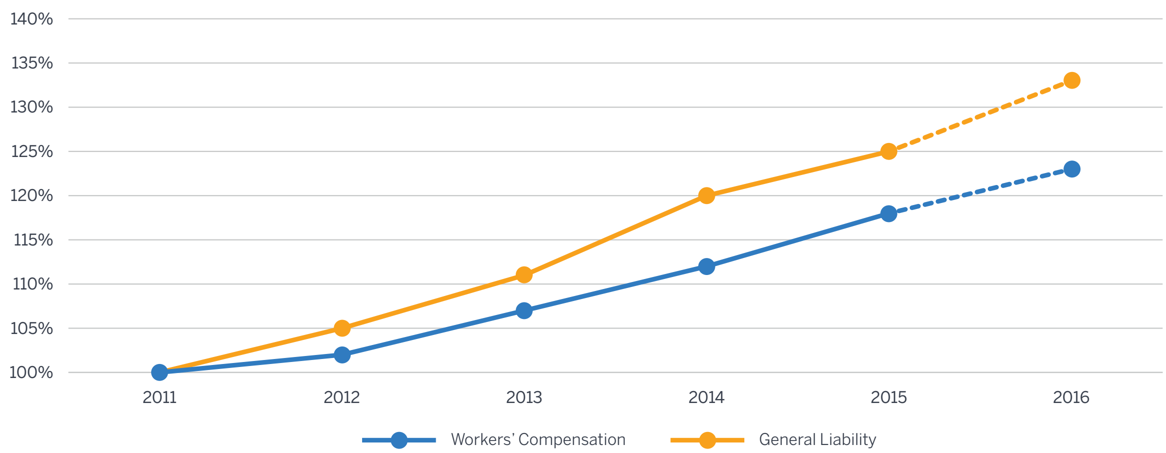
Based on our benchmark data set, we project over 640,000 general liability claims in 2016. With over 320 million people living in the United States,[3] this puts the risk of injury at approximately 0.20% for the average person, or one in every 200 households.[4] Most of the general liability claims are property damage claims, such as damage to vehicles in parking lots. Thus the risk of serious bodily injury while shopping is much lower.

3 U.S. Census Bureau. Population. Retrieved July 8, 2016, from http://census.gov/topics/population.html.

4 Statista (2016). Number of Households in the U.S. From 1960 to 2015 (in millions). Retrieved July 8, 2016, from http://www.statista.com/statistics/183635/number-of-households-in-the-us/.

The cost of risk has stayed fairly level over time because the improvements in claim frequency have been offset by rising severity. The graph in Figure 4 summarizes the claim severity levels over time. For workers' compensation, severity has been increasing at an annual rate of 3.9%, and the average severity for accidents occurring in 2016 is projected to be 23% higher than the average in 2011.

FIGURE 4: CLAIM SEVERITY (RELATIVE TO 2011 LEVELS)



Since 2011, the severity of general liability claims has been increasing at an annual rate of 5.2%, faster than workers' compensation claims.

Workers' compensation (WC) benefit levels are established at the state level. For every dollar of workers' compensation losses, approximately 45% is related to indemnity costs (the lost-wage component that provides wage replacement benefits for employees who are unable to immediately return to work) and approximately 55% is related to medical treatment costs.[5] For general liability as well, the majority of the cost associated with each claim is related to the medical treatment of the customer injury. Thus the average general liability claim costs are affected by many of the same factors driving workers' compensation claim severity:

- **Prescription drugs.** Prescription drugs have contributed to rising average claim costs because the annual increases in prescription costs are higher than other medical costs. Based on the 2014 Medical Data Call, the National Council on Compensation Insurance (NCCI) projects prescription drug costs to represent 17% of total medical costs for workers' compensation claims that occurred in 2014. Further, the NCCI found that prescription drug costs represent 45% to 50% of the ongoing medical expenses for workers' compensation claims that are over 10 years old. Average prescription costs per workers' compensation claim have increased steadily in the United States since 2007 (from $190 in 2007 to $429 in 2014).[6]
- **Medicare Set-Asides.** When an injured person is eligible for Medicare benefits (or will become eligible before the end of the recovery period), Medicare will often be billed for their medical expenses. If the injury occurred at work or as the result of somebody else's negligence, then Medicare will want to ensure that the ultimate payer of those medical expenses is either the insurance carrier or the liable third party. In order to protect Medicare, a system known as "Medicare Set-Asides" (MSAs) was implemented. For WC, the MSA mechanism has existed since the 1990s. For injuries resulting from a liable third party, the MSA mechanism began in

5 National Council on Compensation Insurance Statistical Bulletin.

6 Cooper, S. (May 2016). Workers Compensation and Prescription Drugs: 2016 Update. National Council on Compensation Insurance Annual Issues Symposium.

the late 2000s and is still being developed. Essentially, MSAs are trust funds in which money is deposited and used only for future medical expenses associated with that specific injury. The party that funds the MSA is the employer or insurer (in the case of workers' compensation), or the liable third party or insurer (in the case of liability).

MSAs have been a focus of WC and liability insurers' attention since 2007, when a law was passed that reemphasized Medicare's position, and required certain claims to be reported to the Centers for Medicare and Medicaid Services (CMS) in cases where the insurers—not Medicare—are obligated to pay for injured claimants. Since then, it has been difficult for insurers to settle large workers' compensation and liability claims without first funding an MSA for potential future medical needs. Often, the parties could not agree on the amount of funding needed, and settlements were delayed or effectively blocked altogether. Claims that remain open longer become more expensive over time, add to administrative costs, and require continued medical management of the injured claimant. Moreover, claims that do settle despite the need for an MSA arguably settle for more than what they would have in the past, which is due to the implicit addition of a "risk cushion" to close the claim—a potential tendency to overfund an MSA to some degree in order to resolve the claim with finality.

- **ACA.** A 2016 study by the NCCI reviewed the impact of the Patient Protection and Affordable Care Act (ACA) on the availability of medical services. The expectation was that, as the ACA increased the proportion of the U.S. population that is medically insured, it may thus limit the medical services available to workers' compensation claimants. The study reviewed primary care intensity within the first 90 days of a workers' compensation claim (i.e., the number of visits to a primary care provider), and found that, through 2014, the ACA appears to have had no discernible impact on the availability of medical services.[7]

  The ACA may also reduce workers' compensation and general liability costs for retailers. First, having a larger proportion of the employee population insured may limit circumstances in which an employee seeks treatment under the workers' compensation system for a nonemployment injury. Second, to the extent that the ACA is able to achieve its goal of improving wellness in the population, it may help to lower workers' compensation and general liability claim costs, which have higher medical treatment costs, on average, and longer durations, for claimants with conditions such as obesity, hypertension, and diabetes.

- **Obesity and other comorbidities.** America's aging workforce and population means that the presence of obesity and other comorbidities such as hypertension and diabetes is expected to increase as a factor in workers' compensation and general liability claims. These conditions often delay accurate diagnoses, complicate treatment of an injury, and delay return to work for workers' compensation claimants, thereby increasing the overall duration and cost of the claim.

  An NCCI study indicates that the claim duration (the length of time before the injured worker is returned to work and the work-related injury is healed) is more than five times as long for obese claimants than for nonobese claimants.[8] As the trend in the population has been toward a greater incidence of obesity, this will likely coincide with an increase in workers' compensation costs.

7 Herk, L. (May 2016). The Affordable Care Act and Workers Compensation. National Council on Compensation Insurance Annual Issues Symposium.

8 Schmid, F., Laws, C., & Montero, M. (2013). Indemnity Benefit Duration and Obesity. National Council on Compensation Insurance.

The American Medical Association reclassified obesity as a treatable disease in 2013, which may lead to additional workers' compensation costs.[9]

- Claims with a comorbidity diagnosis have medical costs about twice as high as claims without
- Claims with a comorbidity diagnosis are more likely to be lost-time claims
- Utilization of the health system (the number of doctor visits) is at least twice as high for claims with a comorbidity as for those without
- The magnitude of the effect of comorbid diagnoses depends on both the nature of the injury and the comorbidity
- Having multiple comorbid conditions may further exacerbate claim costs (e.g., the presence of both obesity and hypertension)
- Obesity being categorized as a disease may lead to higher workers' compensation costs in the future, if the obesity is considered necessary to treat as part of the claim management protocol

Continued reductions in frequency are essential to the control of workers' compensation and general liability costs.

Cyber risk

Retailers have experienced some of the most expensive data breaches over the past 10 years, including Home Depot ($56 million), TJ Maxx ($162 million), Target ($162 million), Hannaford's ($252 million), and 30 data breaches that occurred in the retail sector in 2015.[10] The level of cyber activity together with the exposure to costly claims has resulted in higher insurance premiums for retailers (average premiums for retailers increased 30% in 2015 alone[11]) and higher deductible levels over time, which places a greater portion of the cost of specific data breaches and credit card fraud with the retailer. According to the Symantec report:[12]

- The per capita cost (the cost to replace stolen credit cards and monitor for identity theft) of a data breach is lower for retail than for the all-industry average ($189 versus $217 for 2015). However, certain retail segments such as pharmacies are exposed to considerably higher per capita costs ($298 for 2015), as data storage is more heavily regulated and the data includes healthcare and other personally identifiable information.
- Cyber risk is not limited to large retailers. Symantec reports that 43% of spear-phishing attacks in 2015 targeted businesses with fewer than 250 employees. The retail trade experienced an average of 2.1 attacks per organization in 2015 (see the 2016 Symantec Report, page 41).
- Retail was the industry sector most heavily exposed to phishing attacks in 2015, with a phish to email ratio of one in 690 (2016 Symantec Report, page 33).
- The retail sector also had the highest rate of email-borne malware in 2015, with malware present in one in 74 emails (2016 Symantec Report, page 35).

The cost of cyber-related risks, and the costs of preventing, monitoring, and managing the risks, are ultimately borne by the consumer.

9 American Medical Association (June 18, 2013). AMA adopts new policies on second day of voting at annual meeting. News release. Retrieved July 8, 2016, from http://www.ama-assn.org/ama/pub/news/news/2013/2013-06-18-new-ama-policies-annual-meeting.page.

10 Widmer, L. (June 23, 2015). Ten most expensive data breaches to date. Landry Harris & Co. Retrieved July 8, 2016, from http://www.landryharris.com/company-news/10-most-expensive-data-breaches-to-date.

11 Marsh Global Analytics.(March 2016). Benchmarking Trends: Operational Risks Drive Cyber Insurance Purchases.

12 Wood, P. (April 2016). Symantec Internet Security Threat Report. Volume 21: 33-41.

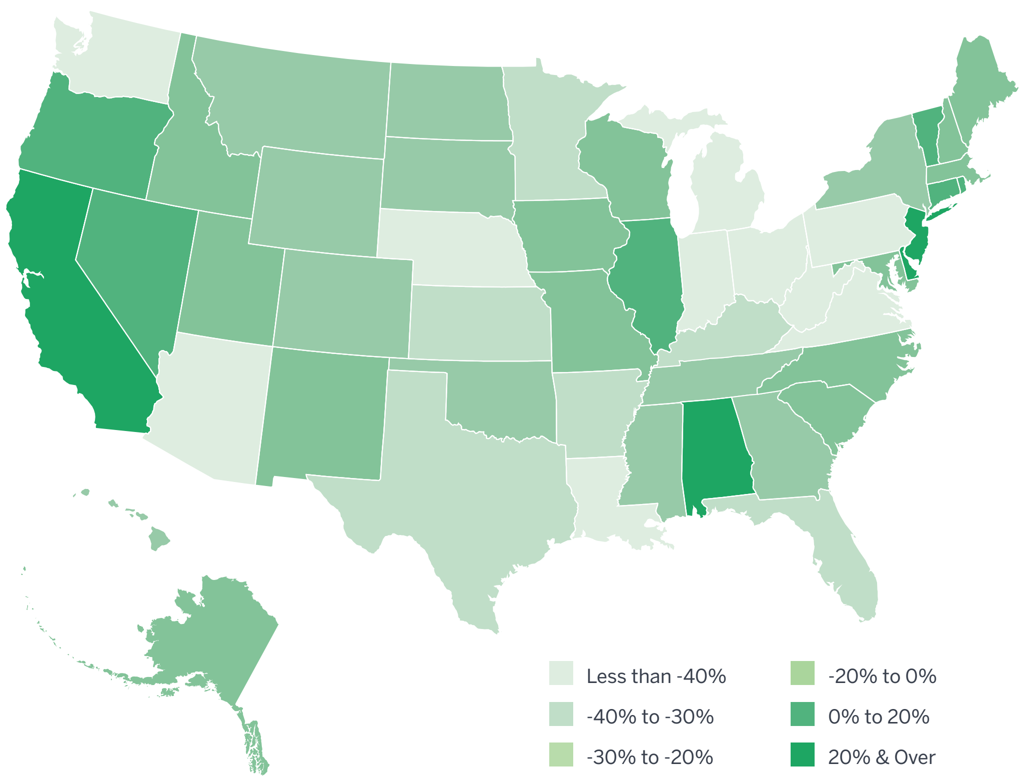
Benchmarking the cost of risk

The cost of risk will be different for different retailers, depending on:

- **Location of operations.** The average cost of the same workers' compensation or general liability injury can vary significantly, depending on where the injury occurs and where the injury is being treated. For workers' compensation, costs are a function of the state-mandated benefit structure, the available medical services, and the costs of those services. For general liability, litigiousness, the availability of medical services, and the caps on noneconomic damages all vary by state.

  The graph in Figure 5[13] summarizes the workers' compensation retail loss rates (the cost per $100 of payroll) for each state, relative to the countrywide averages. Thus, for example, workers' compensation loss rates for retailers are more than 20% higher in California than the U.S. average.

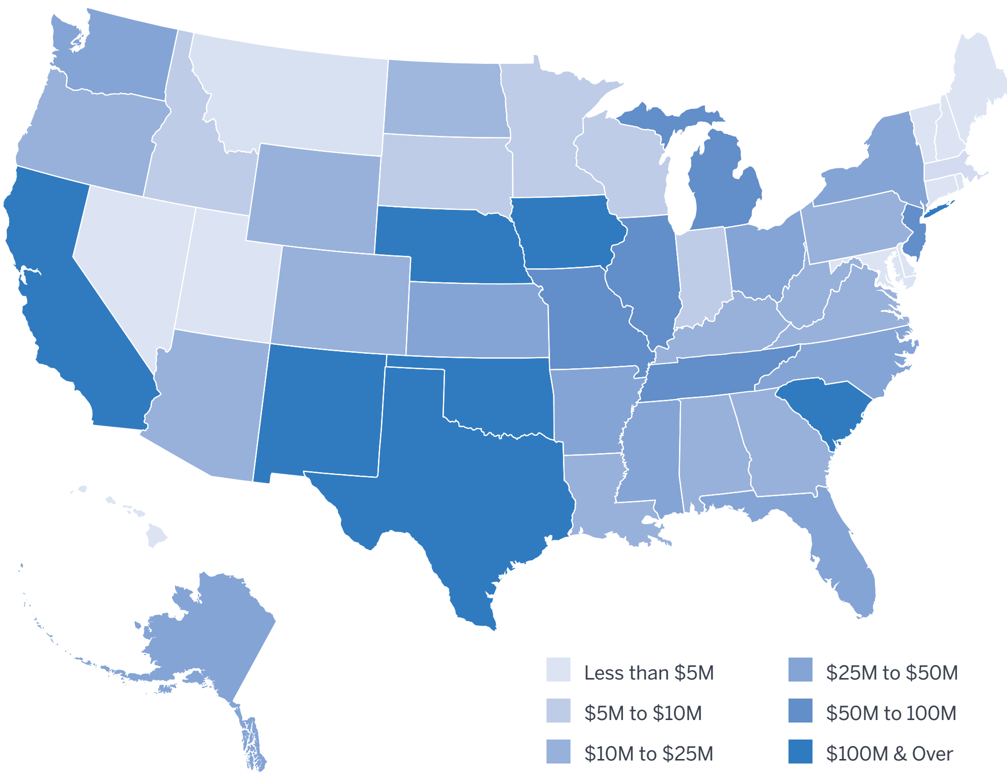
FIGURE 5: AVERAGE RETAIL PREMIUM RATES



13 Payroll data provided by 2012 U.S. Census Bureau (see **http://www.census.gov/econ/susb/historical_data.html**). Premium rates provided by Oregon Workers' Compensation Premium Rate Ranking, Calendar Year 2014, Appendix 1.

Location also affects the potential for catastrophic property losses. Retailers purchase property insurance to limit their exposures from property claims that are due to individual risks. Nevertheless, the absence or occurrence of property catastrophes will affect the cost of risk from year to year. The graph in Figure 6[14] illustrates the variation in damages by state that is due to hazardous weather for a single year.

FIGURE 6: TOTAL DAMAGE DUE TO HAZARDOUS WEATHER IN 2015 ($ MILLIONS)



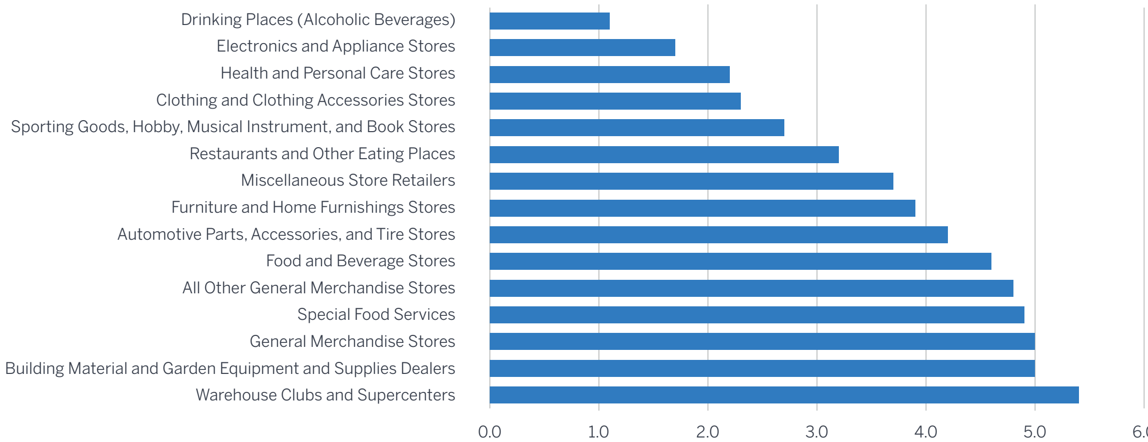
- **Nature of operations.** Different categories of retailers have inherently different risk profiles. A grocery store brings with it the potential for a customer or employee slip-and-fall from a leaking freezer, while a building supplies store brings with it the potential for a strained back from lifting heavy inventory. Under the Occupational Safety and Health Act (OSHA), employers have the responsibility to provide a safe workplace and keep records of work-related injuries and illnesses. The graph in Figure 7 compares the average numbers of injuries reported to OSHA for calendar years 2012 to 2014 (per 100,000 full-time employees) for different retail categories.[15]
- **Safety and loss control.** Companies that emphasize safety and risk management as part of their corporate philosophies, that actively seek methods of injury prevention, and that report on the cost of risk at the highest levels will have fewer workers' compensation and general liability costs.

14 National Weather Service (April 6, 2016). Weather Fatalities. National Oceanic and Atmospheric Administration. Retrieved July 8, 2016, from **http://www.nws.noaa.gov/om/hazstats.shtml**.

15 U.S. Bureau of Labor Statistics, U.S. Department of Labor.

- **Employee organization.** Unionized workforces, in general, have higher workers' compensation costs than nonunionized workforces, all else equal. The presence of unions also means that any new proposed safety equipment or loss control procedures may need to be approved by the union, which adds cost and time to the implementation phase of any improvements.

FIGURE 7: AVERAGE OSHA RECORDABLE CASES, 2012-2014 (PER 100,000 FULL-TIME EMPLOYEES)



The requirements for reporting an incident to OSHA differ from the requirements for filing a workers' compensation claim. However, in general, higher OSHA-recordable rates coincide with higher frequency of workers' compensation claims, and higher workers' compensation costs.

Because the risk profile may be very different for each retailer, companies commonly benchmark themselves "to themselves" by monitoring the annual changes in the cost of risk. Drivers of year-to-year changes may include:

- **Safety and loss control initiatives.** Retailers are looking to deploy their risk management and safety resources in effective and cost-efficient manners. This means identifying the largest problems, whether they are specific stores or operations, particular areas of the stores, particular times of day, specific hazards that exist within the stores, or particular types of injuries. Once identified, retailers can tailor their risk management and safety efforts to address the cost drivers, and monitor the impact of such initiatives.
- **Changes in operations.** Divestitures, acquisitions, mergers, and moving operations from state to state or offshore can significantly impact the cost of risk.
- **Weather and catastrophic property losses.** Retailers, especially large retailers, tend to have high retention levels for low frequency/high severity exposures such as property risks and cyber liability. The retailer may internally "fund" this exposure each year using long-term averages, but the actual experience will vary greatly from year to year. Unusual weather patterns can also lead to higher workers' compensation, general liability, and auto liability claims.

- **Workers' compensation benefit-level changes.** Workers' compensation benefits are established by the laws of each state. Changes made to the benefit structure in a state, or the interpretation of those benefits by the judiciary system, may apply retroactively (to claims that had been budgeted for in prior years), and thus result in unexpected cost changes to existing claims. For example, an unfunded liability was effectively created on April 28, 2016, in the State of Florida by the Florida Supreme Court opinion in the case of Castellanos vs. Next Door Company, in which the fee schedule for attorneys was ruled unconstitutional. The unfunded liability has not yet been estimated, but NCCI estimates the decision will increase workers' compensation costs prospectively by 15%.[16] Thus retailers in Florida can expect an increase in workers' compensation premiums of 15% at renewal in 2016, and, to the extent retailers have retained portions of their own risk (through a large deductible or self-insurance plan), they should also expect to recognize an increase in the estimated deductible losses on prior years.
- **Employee demographics.** For retailers, 23.3% of employees are ages 16 to 24, compared with only 11.3% for non-retailers.[17] The percentage of employees 25 and over, and particularly 45 and over, is correspondingly lower for retailers. All else equal, this should lower the average claim severity for retailers, compared with non-retail companies, as its employee population is able to recover more quickly from injuries. However, it may introduce a source of higher frequency, as retailers have consistent turnover (i.e., introduction of inexperienced staff) in the younger employee population. Any changes in the mix of employees by age group (or by gender) may have an impact on workers' compensation costs.
- **The commercial insurance market.** The cost of commercial insurance will vary from year to year depending on factors that may be entirely unrelated to the retail sector, including profitability in other lines of business, the emergence of latent exposures, the level of competition in the industry, and property and other catastrophes.
- **Emergence of new risks.** The implementation of the Europay, Mastercard, and Visa standard for credit cards (EMV) represents a new risk to retailers that have not adopted EMV-compliant technology, as the liability for credit card fraud is now the responsibility of the party with the least EMV-compliant technology (rather than the bank processor or issuing bank).

When comparing the cost of risk from year to year, it is important to isolate these sources of change, which allows the company to separately identify underlying changes in claim frequency and severity, and the impact of its risk management and safety initiatives. And when comparing the experience for one retailer with market or state averages, it is important to first level-set the industry averages, to the extent possible, to reflect the nature of the retailer's operations.

16 Bailey, C. NCCI Proposes Florida Workers Compensation Rate Increase Effective August 1, 2016. National Council on Compensation Insurance.

17 Bureau of Labor Statistics (June 3, 2016). Labor Force Statistics From the Current Population Survey. Retrieved July 8, 2016, from http://www.bls.gov/cps/demographics.htm.

Summary

The *true* costs associated with workplace and customer injuries include indirect costs that are not measured, and therefore not monitored. For workers' compensation, approximately 27.5% of all claims are projected to be lost-time claims (i.e., will require time away from work that exceeds the state-mandated waiting period, and qualifies the claimant for lost-wage replacement benefits). The cost of training another employee to replace an injured worker who cannot immediately return to work, or must be transferred to a different position, is estimated at 20% of the annual salary of the position.[18] With more than 175,000 workplace injuries each year involving time away from work or some level of job transfer or retraining, and average annual retail salaries of $30,000 a year,[19] training costs alone contribute an estimated $1.0 billion to the retail cost of risk.

Understanding and recognizing the true costs of workplace and customer injuries is critical to enabling companies to make an accurate assessment of the costs and benefits of safety, training, equipment, and risk management initiatives.

Our estimates represent the cost of risk to the retail company, and not to the consumer. The sales prices paid by consumers include provisions for additional risks, including the cost of risk of the product designers, manufacturers, and transporters, all of which are passed on ultimately to the consumer in the price of the product. Thus the cost of risk associated with the purchase of an individual product is considerably higher.

18 Boushey, H. & and Glynn, S. J. (November 2012). There Are Significant Business Costs to Replacing Employees. Center for American Progress.

19 Bureau of Labor Statistics (March 30, 2016). Occupational Employment and Wages, May 2015. Occupational Employment Statistics. Retrieved July 8, 2016, from http://www.bls.gov/oes/current/oes412031.htm.

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CONTACT

Amy Angell
amy.angell@milliman.com