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Abstract

Technological advances have enabled enhancements in the financial services industry such as improved digital sales opportunities, enhanced communication with consumers, expanded accessibility of services, and improved tools for financial planning. These advances are democratizing services once available only to wealthy, extending older peoples' ability to live independently, and improving their quality of life. This chapter presents a series of case studies explaining how the life insurance industry can use technology and new data to streamline the life insurance underwriting process and improve trust and transparency between insurers and customers. It also discusses how new content can enable on-demand education and simplify end of life planning, as well as the difficulties people face when saving for the types of purchases that can lead to credit card debt and challenge retirement savings. We also touch on the potential for wearable technology to improve wellness and manage chronic diseases.

Keywords: Innovation, insurance, underwriting, longevity, wearable technology robo-advisor

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RGAx

Technology-enabled advancements in the financial services industry have allowed for improvements in customer engagement, education, and personalized product offerings. Investment in financial technology, or FinTech, has dramatically increased in recent years, to a record high \$16.6 billion invested in more than 1,000 companies in 2017, according to CB Insights (Wong 2018). Investment in this space has the potential to disrupt the financial services industry and change the way traditional businesses operate. This chapter presents research gathered in support of business initiatives in the life insurance industry to adapt to FinTech disruption. These business plans focus on ways to improve the customer experience and encouraging financial responsibility.

Drivers of the FinTech Revolution

One driver of the FinTech revolution is the significant generational change taking place: the retirement of the Baby Boom generation coinciding with larger numbers of the Millennial generation entering the workforce. The Baby Boom generation is typically defined as those born in the years following World War II through the early 1960s, and it is currently the largest generational demographic (Fry 2018). The Millennial generation has been referred to as the ‘echo’ boom, as many in this generation are the children of Baby Boomers. Millennials are those born between the early 1980s and the late 1990s, now 20 to 35 years old. According to the Pew Research Center (2015), they became the largest portion of the workforce in 2015. The Millennial generation also differentiated from previous generations by growing up in the digital age and attaining high levels of education, with over 60 percent attending college (Council of European Advisors 2014). The economic downturn of 2008 had a profound impact on both the near-retirement Baby Boomer cohort and the graduating Millennial generation. This shared experience means that these two large

generations faced economic challenges to their financial security which may hinder their ability to achieve their retirement goals.

Another development with repercussions for the financial services industry is the emergence of data-enabled digital services, prompting a change in advice sources. Consumers can now obtain financial advice from a variety of channels, rather than only through in-person conversations. Consumers can read content online and ask questions within their social network communities. Data also enable consumers to benchmark themselves and compare their needs to those of ‘people like me.’ Technology has progressed to the point where consumers can ask questions any time of day and receive instantaneous answers. These advances allow for a more personalized consumer experience adapted to the needs of the individual.

An additional factor driving change in this industry is the evolution of employee benefits and the employment landscape. Traditionally, employee benefits provided people with resources to support a secure retirement, including health insurance coverage as well as group life insurance policies. Workers were also able to contribute to their retirement savings through pensions and 401k contributions. Today, by contrast, benefit packages less comprehensive than in the past, and a growing number of people are also employed outside of a traditional workplace. The workforce has changed, with more than one-third of the US workforce participating in the ‘gig’ economy (Pofeldt 2016). People can now earn money working freelance jobs or as entrepreneurs which provides greater flexibility but often lack traditional employment benefits, including retirement and insurance. These trends have contributed to the development of FinTech solutions and the disruption of the traditional financial services business model.

Technological Change Democratized Financial Services

Financial advice and protection that were once reserved for the wealthy are now accessible to a greater number of people, due to lower costs to provide these services as well as an increase in the number of methods to communicate with consumers. This development has profoundly changed the life insurance industry, because even though insurance protection serves a social good, historical distribution methods have fallen short in reaching people who may most need coverage. We conducted many consumer interviews to understand how to most effectively adapt offerings to best meet their needs. Consumers explained that, without life insurance protection, loss of a family member would threaten their financial security and future financial stability.

The Life Insurance and Market Research Association (LIMRA) estimates that 30 percent of US households lack life insurance coverage and nearly half have insufficient protection to meet their needs, resulting in a \$12 trillion coverage gap (Scanlon 2016). If the primary wage earner in a household were to die, 40 percent of households with children under age 18 report they would have immediate financial trouble, and nearly 70 percent of all households would struggle with everyday living expenses within a few months (LIMRA 2016).

There is tremendous opportunity for the financial services industry to leverage technological advances, which make financial information and tools more accessible, to help meet the needs of consumers who need financial protection.

Barriers to Financial Protection

Insurance protection is largely an intangible benefit, especially if no claim is made while the customer has coverage. Additionally, consumers have many competing financial priorities, and coverage over a long time horizon can be difficult to conceptualize. The traditional sales process is also a barrier to many consumers, which can contribute to their inertia. A fully underwritten

individual life insurance policy typically requires evaluation that can take several weeks before the application is approved. Further, policy language is complicated and time-consuming to research. Moreover, some consumers lack trust in the agent selling the policy and in the insurer to fulfill its claim payment obligations. Many people struggle to achieve their financial goals, and the financial services industry needs to understand the barriers consumers face in their quest for financial security.

Technology can Improve Customer Experiences

A subcategory of FinTech is Insuretech; technology solutions designed to address the needs of the insurance industry. Investment in Insuretech has grown 16% increase from 2016 to 2017, and more than \$8 billion invested since 2012 (Wong 2018). Insuretech investments have focused on building platforms for underwriting, claims payments, and online quoting and application. The solutions are aimed at removing the abovementioned barriers to obtaining life insurance coverage.

Insurance companies are adapting to the trends impacting the industry in other ways as well. Many are creating digital tools that satisfy consumers' desire for personalization and on-demand access. Data enable customizable product offerings designed to improve their relevance to an individual's particular coverage needs as well as sustain engagement with the insurer. Simplicity in communication and transparency in the application and purchasing process have the potential to improve consumer trust in the insurance industry.

Data Sources

The financial services industry has leveraged data from disparate sources to improve the customer experience. For instance, the traditional life insurance underwriting process considered

many evidence sources, including the results of medical exams and blood profiles. The process was invasive, expensive, and lengthy – often taking several weeks to reach a decision to accept (or decline) a life insurance application. Life insurance consumers, as well as sales agents, wanted a more streamlined process for assessing risk. According to Art and Sondergeld (2017), half of the life insurers surveyed now have a process in place to utilize technology and additional data sources to accelerate the underwriting process, and only 10 percent of insurance company respondents lack plans to streamline the underwriting process.

Often this involves a triaged approach to assess risk, augmenting traditional data collection with additional information to accelerate acceptance of a subset of applicants based on the absence of concerning evidence. Some examples of data sources currently used include insurance application history, prescription history, driving history, and credit history. If no red flags are found, an individual consumer will be offered insurance at a competitive rate, while the remaining applications require further medical evidence.

Data on an applicant's insurance application history are available from the Medical Information Bureau (MIB), a member-owned organization established in 1902. Insurance company members submit application information to MIB with the intent to identify errors and omissions on an application and to prevent potential fraud. Participating insurers can use the MIB database to validate the accuracy of an insurance application relative to previous applications made by that same individual. MIB is a well-used data source in the life insurance underwriting process; it is used for nearly 90 percent of individual life insurance applications, and all of the widely used in accelerated underwriting programs (MIB 2017; Art and Sondergeld 2016).

Prescription drug data have long been available to pharmacy companies for drug research and development. In recent years, Pharmacy Benefit Managers (PBMs) and PBM aggregators have

also provided these data to the life insurance industry to assist in the assessment of mortality risk. This information is valuable to insurers because prescription history is closely related to medical history. Studies have shown that predictive models designed to assess risk can utilize this type of data to segment mortality and enable policy application acceptance without the need to depend on slower, more costly, and invasive tests. Art and Sondergeld (2017) report that more than two-thirds of insurers use prescription drug records to inform their accelerated underwriting programs.

Actuarial studies have also found a statistical relationship between motor vehicle records (MVR) and all-cause mortality experience. Researchers at the Reinsurance Group of America (RGA) analyzed the relationship between mortality and motor vehicle driving records (Rozar and Rushing 2012). Figure 1 demonstrates the extra mortality from higher-risk individuals solely due to their driving history. People with one or more major driving violations, such as driving in excess of 30 miles per hour above the speed limit, exhibit higher overall mortality experience. Further, this extra risk increases with the number of violations.

Figure 1 here .

Underwriters have relied on MVRs to assess mortality risk for years; however, MVRs also provide value in accelerated underwriting decisions. For example, a driving record that includes major violations could require additional underwriting evidence to support policy acceptance, while a clean driving record may support an accelerated decision. Similar to prescription drug data, Art and Sondergeld (2017) reported that more than two-thirds of insurers use MVRs to inform their automated underwriting programs

Following the lead of property and casualty insurers, the life insurance industry has also begun to employ financial credit data provided by the US major credit bureaus to better applicants' mortality risk. Actuarial studies have found an association between an applicant's credit history

and his or her mortality risk. For instance, TransUnion and RGA have developed a tool called TrueRisk® Life using components of individual consumer credit data that effectively segments mortality risk even without further underwriting. As shown in Figure 2, people with the best 5 percent of TrueRisk® Life scores (96-100), have five times lower mortality than those with the worst percent% of scores (1-5) (Kueker 2015).

Figure 2 here

The use of credit data in accelerated underwriting programs is growing in popularity among insurers. Only 18 percent of companies surveyed by LIMRA use credit data in their accelerated underwriting programs in 2017, but an additional 38 percent of surveyed companies have plans to include this data as an evidence source in the future (Art and Sondergeld 2017). This is significant for life insurance consumers because it reduces the need for intrusive underwriting evidence to assess risk for a segment of applicants. Insurers are able to provide a faster decision to insurance applicants who score well in the model.

The universe of data used to accelerate underwriting decisions continues to expand, as insurers are investigating the protective value of other sources such as electronic health records, fitness data obtained from wearable devices, and connected devices (known as ‘the internet of things’). Data and technology used to streamline the life insurance underwriting process also have the potential to improve the financial planning industry. Retirement savings plans will benefit from improvements in longevity projections that are supported by new data sources. For instance, projections for how much money an individual will need to save for retirement often include a life expectancy used to estimate the necessary amount of savings. However, these projections are often oversimplified and based on longevity projections of average individuals. More information can be used to do a better job with retirement planning, as demonstrated in Table 1.

Table 1 here

A healthy 65-year-old man can expect to live to age 87 and 10 months. By contrast, when specific health conditions are factored in, they have a clear impact on his expected life expectancy. For example, half of overweight smokers will live to 83 years and 2 months. The accuracy of retirement projections could improve if they were based on the more individualized life expectancy projections utilized in life insurance underwriting. In this way, technological advances can help the financial planning process, as customers and advisors seek to better match their wealth trajectories with their longevity.

End-of-Life Planning Tools

Consumers increasingly want to research financial options on their own schedule. Millennial consumers, in particular, are interested in utilizing technology such as video conferencing and tech services in lieu of financial advisors. Nevertheless, many consumers remain interested in purchasing life insurance with an advisor. According to Finnie et al. (2017), more than half of consumers use the internet to research policy options, but fewer than one-third purchase life insurance online. Our own consumer research highlighted the need for simplicity in financial educational tools and a desire for personal assistance. According to one of the consumers interviewed, ‘The insurance information my husband brought home was just charts, charts, charts. I feel overwhelmed with all this information. I would like someone to read it to me.’

While the majority of consumers still rely on the advice of a salesperson to complete the purchase of life insurance products, the network of trusted advisors has expanded. People are increasingly relying on the recommendations and advice of their friends and family, as well as their broader social network. Online content, assessment tools, and calculators all contribute to the

financial education support system. That said, navigating the myriad of planning tools remains overwhelming to many consumers. Consequently, end-of-life planning tools are gaining popularity, both as employee benefits and as value-added services from insurers and agents.

Even though the majority of consumers know financial planning is important, many postpone taking steps to protect their future financial security which in turn becomes a source of stress. In a survey conducted by Allianz, 61 percent of survey participants indicated they were more afraid of outliving their assets than they were of death (Allianz 2010). Yet, in spite of the fear and stress that result from financial uncertainty, there is still a gap between those that intend to buy life insurance and those who actually purchase. This inertia creates emotional and financial costs for consumers.

Financial planning needs extend beyond simply educating consumers about the insurance purchasing decision. They also include services that help families manage the full portfolio of assets associated with an estate plan. Because so much of people's lives is conducted digitally, consumer assets have grown beyond account balances and monthly statements, and as a result are becoming more difficult to manage. Digital assets likely to be lost or destroyed without a digital estate plan include:

- (1) Online accounts, including email and social media;
- (2) Personal documents such as photos and videos;
- (3) Financial and investment accounts;

- (4) Loyalty reward points; and
- (5) Digital data that requires a password to access.

Companies exist which provide estate plan management digitally, offering users the organization of important information, educational support, and clear communication to friends and family during a time of grief. End-of-life planning tools often include a variety of services such as digital storage, wishes that go beyond information in a will, appointing deputies, communicating financial information as well as digital information to family, checklists, and pet care. Companies in this space prominently feature data security. Nevertheless, there are differences in the scope of services provided. For example, Docubank focuses on secure storage of important end-of-life planning files and documents, whereas Everplans offers educational content and financial advisor communication tools in addition to data repository services. Current offerings vary in their format and level of educational detail, from providing a mobile app with simple swipe features for consumers to indicate end-of-life wishes to full-service guidance, storage, and communication tools (Bednar 2017).

End-of-life planning tools can also fill a need for financial planning, helping families navigate confusing financial areas by providing guidance. RGA's consumer research also found that some people are concerned about their loved ones' ability to responsibly manage a life insurance benefit without guidance. This consumer concern is another justification for an expanded financial planning tool kit.

Competiscan reviewed consumer feedback on several 'final wishes' planners and evaluated feedback on ease of understanding, demonstration of expertise, and emotional appeal. It concluded that service providers must be able to strike a balance between providing overly simplistic materials, versus and overwhelming consumers with too much detail. Many consumers value the ability to digitally save documents in a single location, including personal genealogy information.

While finding the right balance of practicality and emotional appeal poses a challenge to creators of end-of-life planning tools, there is tremendous need for financial guidance. Lack of end-of-life planning costs American families an estimated \$58 billion in unclaimed benefits that are unknown to beneficiaries. The unclaimed property includes abandoned bank accounts and stock holdings, unclaimed life insurance payouts, and forgotten pension benefits (Hicken 2013). Millennials and Gen-X consumers are attracted to digital self-service platforms, and given that the average age of financial advisors is 50, an expanded service offering would help the financial services industry maintain relevance with digital-savvy consumers (Tourneyalai 2017).

Challenges to Saving

Financial challenges that inhibit people's ability to save for retirement also affect whether they can afford life insurance protection. Allison and Harding (2017) note that 52 percent of American workers are stressed about their finances, and 54% of those stressed about finances plan to postpone retirement.

Debt is a burden for many Americans. According to the Federal Reserve Bank (2018), non-mortgage debt in 2017 estimated at \$3.8 trillion. For many Millennials, this debt is due to a heavy student loan burden, but it also includes debt from home improvement projects, car loans and paying for consumer goods. High levels of debt also compromise budgets with principal and interest payment obligations. (Noble 2018) found that nearly half of survey participants stated that too much of their annual income goes toward paying off debt, and 61 percent of survey respondents indicated that debt payment responsibilities negatively impacted their ability to save for retirement.

According to the Common Cents Lab (2017), 90 percent of Americans lack personal savings. Further, 40 percent of those who will reach retirement age in the next five to 10 years

report having no money saved for retirement (Common Cents Lab 2017). Because an inability to save is related to spending behaviors, our research evaluated spending needs arising from life events that often coincide with a need for life insurance. We found that those life events included marriage, buying and improving a home, and having a baby.

This research revealed that very few people understand the full cost of purchases related to one of these life events. Even diligent savers without debt felt unsure about how much they would have to save to prepare for such events.

Competing financial priorities is one of the many obstacles to saving, yet consumers have suggested a few techniques financial services companies could employ to help encourage saving. Tools designed to encourage saving can remind consumers of their savings goals, giving a purpose to their saving. This could be as simple as including a picture related to their saving need (such as a baby) on their digital saving tool.

Common Cents Lab (2017) found that consumers save more when they are given a visual representation of the progress they have made toward their saving goals. Our consumer interviews supported the use of positive reinforcements such as a bonus associated with attainment of interim goals.

A number of companies compete in this area of financial technology. One such, Qapital, seeks to help consumers increase savings accounts by ‘rounding up’ payments to add a small amounts over time to their savings. Other companies such as Acorns and Stash utilize technology to democratize services and allow middle income consumers to formulate their own investment strategies (Murakami-Fester 2017). In order to engage with consumers, such firms must have a strong mobile presence.

FinTech can also provide new tools designed to help consumers spend more wisely. Many financial service offerings are geared only toward saving for a future point in time, without consideration for how to spend money efficiently in the present. To help fill this gap, United Income helps consumers establish a wise post-retirement spending plan (Hughes 2017).

Wellness

Many insurers are beginning to adopt a holistic view of wellness that includes financial well-being along with physical health. This helps send consumers a message about living longer, more productive, and financially responsible lives supported by insurance-provided wellness benefits. Wellness programs that contribute to healthy lifestyle behaviors may also lead to shorter periods of ill health and disability as people age.

Over 70 percent of the US population is overweight or obese, and this contributes to more than half of the early deaths from related conditions including heart disease, diabetes, and certain cancers (Centers for Disease Control 2016; Macha 2017). Good nutrition, sleep and exercise all contribute to healthy living, and to the extent that wellness programs can motivate healthy changes, insurance customers will benefit from them as well as improve the financial returns of life insurers. Additionally, the wearable device technology used to verify wellness program activity can also help in earlier detection of conditions such as heart disease and diabetes, which can lead to earlier interventions and extend quality of life.

Technology-driven wellness solutions have many possible applications in the life insurance industry. For instance, people who suffer from chronic conditions often struggle to obtain affordable insurance protection. Consumers seeking to demonstrate responsible management of their health conditions may be able to use a wellness program to differentiate their risk from people

who are not active in improving their health. Similarly, technology can enable drug-adherence programs, which also contribute to the improved health of their users.

Thoughtfully wellness programs can also play a part in healthy aging. Programs focused on mobility can prevent falls and improve strength, thereby enabling seniors to live independently longer at home. Indeed, connected devices in the home can extend this period of independent living, which benefits individuals as well as providers of long-term care insurance coverage.

It is also important for insurers to understand a given technology's capabilities and usability before including it in an insurance wellness program. A wearable technology study of 1,000 employees, their family, and friends, employed five different fitness devices worn for 12 weeks. The researchers found that there was a difference in the metrics captured by the wearable devices. Moreover, comfort of the device contributed to sustained usage; this was especially true for those wearing the device to measure sleep (Falkous 2016).

Insurance wellness programs have potential to increase the years of healthy independent living as well as lower healthcare costs as people age and move through retirement.

Conclusion

Technological advances are enabling the financial services industry to develop data-driven, personalized products that are responsive to consumer expectations. The availability of new data sources can improve the customer purchase experience and enable digital sales of financial products, such as life insurance, that historically required invasive and lengthy evaluation.

Helping consumers improve their saving habits as well as fostering informed spending with FinTech will remove some of the barriers that threaten financial responsibility. Programs

focused on promoting wellness can improve participants' quality of life. This increases the value of insurance offerings beyond simple financial protection.

References

- Allianz (2010). *Reclaiming the Future: Challenging Retirement Income Perceptions*, Munich, Germany: Allianz White Paper. https://www.allianzlife.com/-/media/files/allianz/documents/ent_991_n.pdf?la=en&hash=22B9CE8151AB813C34696723818B40C4AF46D62D
- Allison, K. E. and A. J. Harding (2017). *2017 Employee Financial Wellness Survey*, London, UK: PWC Report. <https://www.pwc.com/us/en/industries/private-company-services/library/financial-well-being-retirement-survey.html>.
- Art, M. M. and E.T. Sondergeld (2017). *Transforming Underwriting*. Windsor, CT: LIMRA Report.
- Bednar, J. (2017). 'Web Services Take End-of-life Planning into the Smartphone Age,' BusinessWest.com. <http://businesswest.com/blog/web-services-take-end-life-planning-smartphone-age/>.
- Centers for Disease Control and Prevention (2016). *Obesity and Overweight*, Washington, D.C.: CDC: <https://www.cdc.gov/nchs/fastats/obesity-overweight.htm>.
- Common Cents Lab (2017). *2017 Annual Report – Common Cents Lab*, Center for Advanced Hindsight.
- Council of Economic Advisers (2014). '15 Economic Facts About Millennials.' Washington, D.C. https://obamawhitehouse.archives.gov/sites/default/files/docs/millennials_report.pdf
- Falkous, C. (2016). *Wearable Wellness*, New York, NY: Reinsurance Group of America (RGA). <http://www.rgare.com/knowledge-center/media/articles/wearable-wellness>.

- Federal Reserve Bank of New York (2018). *Household Debt and Credit Report*. New York, NY: Center for Microeconomic Data. February:
<https://www.newyorkfed.org/microeconomics/hhdc.html>.
- Finnie, L., J. Scanlon, and M. Leyes (2017). '2017 Insurance Barometer Study,' LIMRA.
- Fry, R. (2018). *Millennials Projected to Overtake Baby Boomers as America's Largest Generation*. Washington, DC: Pew Research Center. <http://www.pewresearch.org/fact-tank/2018/03/01/millennials-overtake-baby-boomers/>.
- Hicken, M. (2013). '\$58 Billion Unclaimed: Is Some of it Yours?' *CNN Money*. January 27:
<https://money.cnn.com/2013/01/24/pf/unclaimed-money/index.html>
- Hughes, N. C. (2017). 'The FinTech Startup Helping Retirees with Spending, Not Saving,' *The Next Web*. September 27: <https://thenextweb.com/contributors/2017/09/27/united-income/>.
- Kueker, D. (2015). 'The Power of Big Data: An RGA Case Study,' *RGA Quarterly: Europe*.
- LIMRA (2016) *Facts About Life 2016*. LIMRA Report. Windsor, CT.
https://www.limra.com/uploadedFiles/limra.com/LIMRA_Root/Posts/PR/_Media/PDFs/Facts-of-Life-2016.pdf.
- Macha, R. (2017). 'Association Between Dietary Factors and Mortality From Heart Disease, Stroke, and Type 2 Diabetes in the United States,' *Journal of American Medical Association*, 317(9):912-924.
- Medical Information Bureau. (2017). 'Facts about MIB,' MIB Report. Braintree, MA.
https://www.mib.com/facts_about_mib.html.
- Murakami-Fester, A. (2017). 'NerdWallet's Best Money Saving Apps.' *Nerdwallet*. November 8:
<https://www.nerdwallet.com/blog/banking/best-money-saving-apps/>.

- Noble, E. (2018). 'Danger Ahead? Impact of Debt on Retirement Saving.' LIMRA Report.
Windsor, CT.
- Pew Research Center (2015). *Millennial Surpass Gen Xers as the Largest Generation in U.S. Labor Force*. Pew Research Center. <http://www.pewresearch.org/fact-tank/2015/05/11/millennials-surpass-gen-xers-as-the-largest-generation-in-u-s-labor-force/>.
- Pofeldt, E. (2016). 'Freelancers Now Make Up 35% Of U.S. Workforce.' *Forbes*. October 6:
<https://www.forbes.com/sites/elainepofeldt/2016/10/06/new-survey-freelance-economy-shows-rapid-growth/#140052fc7c3f>
- Rozar, T. and S. Rushing (2012). *An Analysis of Motor Vehicle Records and All-Cause Mortality*. St. Louis, MO: Reinsurance Group of America (RGA).
- Scanlon, J. T. (2016). *Life Insurance Ownership In Focus - U.S. Household Trends 2016*, LIMRA. September 28:
[https://www.limra.com/Research/Abstracts_Public/2016/Life_Insurance_Ownership_in_Focus__U_S__Person-Level_Trends_\(2016\).aspx](https://www.limra.com/Research/Abstracts_Public/2016/Life_Insurance_Ownership_in_Focus__U_S__Person-Level_Trends_(2016).aspx).
- Touryalai, H. (2017). 'America's Top Next-Gen Wealth Advisors: Millennials Who Survived 2008 Are Now Managing Billions.' *Forbes*. July 25:
<https://www.forbes.com/sites/halahtouryalai/2017/07/25/americas-next-gen-wealth-advisors-millennials-who-survived-2008-are-now-managing-billions/#5fb7cea42d1a>.
- Wong, M. (2018). 'Fintech Trends to Watch in 2018,' *CB Insights*.
https://www.cbinsights.com/reports/CB-Insights_Fintech-Trends-2018.pdf.



Figure 4.1. Relative Mortality by Number of Major Violations

Source: Rozar and Rushing (2012).

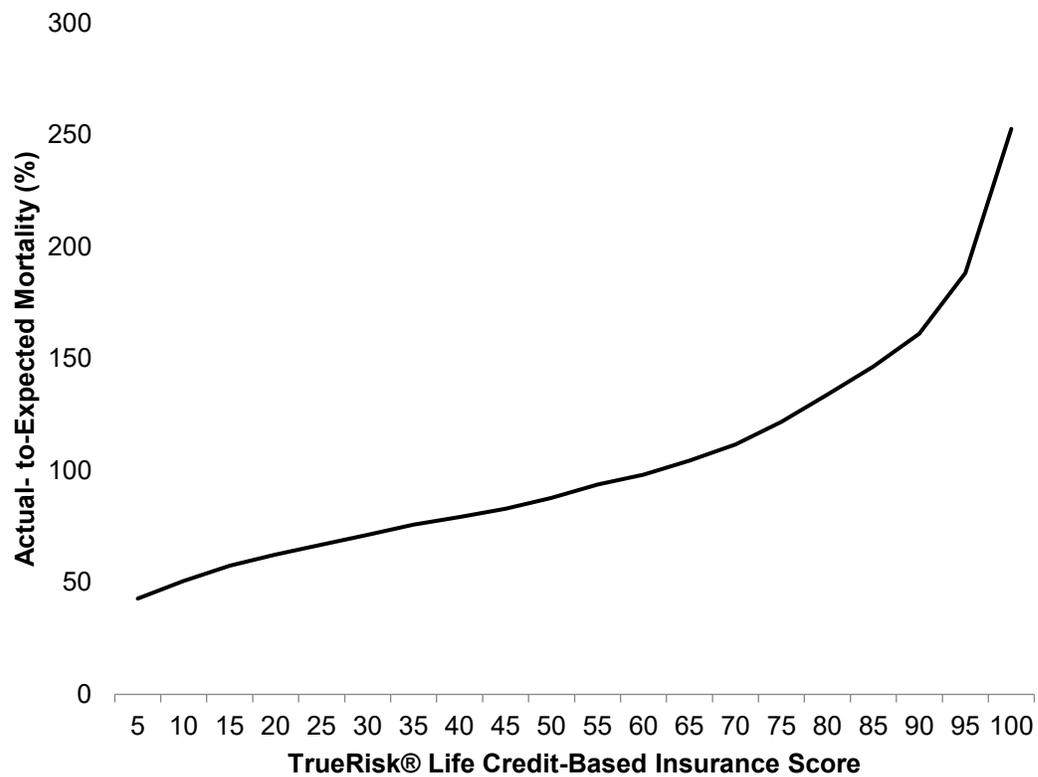


Figure 4.2. 12-year study of U.S. population mortality segmented by a credit-based score

Source: Kueker (2015).

Table 4.1. Comparing life expectancy for a 65-year-old man with different conditions

Description	Estimated Life Expectancy	Difference from Clean
Clean Health	22 years, 10 months	0
High Blood Pressure; Cholesterol	21 years, 10 months	1 year
Prostate Cancer	21 years, 3 months	1 years ,7 months
Diabetes	19 years, 10 months	3 years
Smoker; BMI 35	18 years, 8 months	4 years, 2 months
Recent Heart Attack	17 years, 3 months	5 years, 7 months
Decompensated Heart Failure	11 years, 1 month	11 years, 9 months
Lung Cancer stage IV	0 years, 11 months	21 years, 11 months

Notes: Technology, such as RGA's AURA underwriting system is at the heart of our Annuity Risk and Rating Tool (ARRT). ARRT calculates individual life expectancy based on detailed medical history, treatment and symptoms; it has been the bedrock of the UK enhanced annuity market.

Source: Life expectancy calculations are based on RGA's Annuity Risk and Rating Tool.

In this example, a healthy 65-year-old man could expect to live to age 87 and 10 months.