Newsletter – 2018 Predictions

My name is Max Rudolph. I consult with institutional investors, advisors, and individuals about enterprise risk management, asset-liability management and strategic planning topics. I also do financial research projects and read quite a bit about financial and historical topics. I try to find examples of history repeating itself through approximate cycles. I am a private investor focused on individual stock selection and value investing techniques. My background earning credentials from the Society of Actuaries and CFA Institute, combined with proximity to Warren Buffett and Charlie Munger through Omaha residence has paid dividends. I believe you can reduce risk and increase return simultaneously using contrarian techniques. Recent interests include complexity theory, behavioral economics, and emerging risks. These are also the topics I occasionally tweet about @maxrudolph. In addition to client work, I develop and present continuing education programs and am an adjunct professor teaching online graduate level programs at Creighton University. I live in Omaha, Nebraska, USA, am credentialed as an actuary and hold a CFA charter. I have written a monthly newsletter since 2008 and each January post my predictions for the year. Late in the year I review and compare against what actually happened. Some topics are written at a high level, dealing with the general economy. Some are more detailed, covering specific topics like incentives or modeling financial assets. Most cover issues that I am stewing over and need to do a brain dump. In March I update my intrinsic value calculation for Berkshire Hathaway and in the fall I update the scenarios I think should be tested by financial institutions. I am a lifelong learner, and that impacts how my current thinking evolves. My newsletters are educational in nature and do not constitute investment advice. They are released publicly at www.rudolph-financial.com with a delay of several months after they are released to subscribers.

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Predictions for 2018

These are not really predictions in the classic sense. Treat them more like scenarios that you can build resilience against to survive over the long term.

Disclosure - please remember that these predictions are for fun and to encourage deeper thinking across topics and a longer time horizon. If I really knew what was going to happen I would not share that information with you! You must make your own personal investment and risk decisions, consider your unique financial circumstances, and not hold others (especially me) responsible for your own financial planning or lack thereof. If you

don't accept these conditions you should stop reading now. For those still with me, Enjoy!

General happenings

The financial markets continue to confuse me. I see lots of warning signs; geopolitical risk, monetary policy tightening, reduced covenants, higher leverage (especially margin debt). It feels like all we are waiting for is a trigger for a crash. What could cause emotions to turn against assets? A Presidential tweet, war in the Middle East, even the retirement of Angela Merkel could be all it takes. Populism took a breather and now is back in Eastern Europe. Venezuela has finally run out of reasons not to implode, but I don't think this will be more than an isolated event unless it impacts the oil markets. Trump has his first year nearly complete, and it has been very stressful. This makes it even harder to understand how the economy continues to grow so quickly. Are we better off on auto-pilot? Do human interactions reduce growth, so taking us away from decision making means better decisions are made?

The US tax plan will artificially boost asset values and not hurt GDP, but adds to the imbalances in the system that needs so desperately to clear. Reducing regulations makes sense in some instances, but unwinding Dodd-Frank without discussion and shutting down the EPA and DOE with no discussion is scary. Monetary policy will have to tighten quicker than they want to, and this could be "the" event since QE and QT (quantitative tightening) are uncharted territory so no one knows how to take away the punch bowl, especially when fiscal policy is still accommodative.

European and Japanese Central Banks have gone beyond buying government assets and now are major players in the equity markets. They will be challenged while unwinding those positions or getting in the middle of a proxy fight.

I tend to think farther out on the time horizon than most, and I can see a scenario that scares me very much. One where bullies with guns take what they want with immunity, destroying the economy and civilization as we know it. I read The Fourth Turning this year, and it nearly predicts some sort of tribalism/populism every 80-100 years. We have no moderates. We have far left zealots who think they know what's best for everyone, and far right zealots who profess to want to be left alone but once in charge do everything they can to retain power and enact their preferences on everyone.

Climate change will continue to be a major topic for as long as I can see. Humans have created change at such a rapid pace that plants and animals can't keep up. Species are being eliminated so quickly that we will have to carefully choose which ones to retain since we can't save them all.

I continue to believe that the underlying world economy never cleared the imbalances built up over the past 20 years (starting with the Fed's reaction to Y2K, and arguably earlier than that based on *After the Fall* that goes back to Continental Illinois).

Proponents of the tax act say that investment by companies will grow, but why is that true when rates are already low. It would have happened already. Incentives have to become aligned with job growth. The government needs to use its funds to build infrastructure rather than blow things up. They need to balance the fiscal budget occasionally, and become sustainable. Central banks need to push back on politicians who act as if they can spend all they want because they want you to think that the Fed drives the economy. Monetary policy only works when fiscal policy is reasonable and debt/GDP is below 90% (per Reinhart/Rogoff *This Time is Different*).

I see similarities to 1937 moving into 1938, when the Great Depression was reenergized by the Fed and fascism gained momentum. War soon followed. 1973 and the nifty fifty have many similarities with the current environment, with guns and butter making a comeback in economic analysis. Deficits cannot be allowed to continue without ramifications.

Going forward Trump is starting to get people in place; some are horribly unqualified. The ones named as judges that are lifetime posts could do damage for 50 years. I have read several articles about parts of the government that have not been restocked with senior leadership, and this too will be a big deal over the long run. The EPA and DOE save lives if allowed to do so.

I think the Fed will start off tightening quickly and have to back off by late summer, mainly due to the combination of hikes and reduced QE balance sheet items. Trump will be quick to blame the Fed for a recession, but they are forced to react to the tax cuts.

I would not be surprised to see a European financial crisis kick up again in 2018, but for now the discussion is focused on populism and Brexit. Southern Europe would be better off out of the EU. Germany would not.

In the US velocity of money may or may not have bottomed, but certainly has not yet rebounded although the result shared for 4Q2017 may show inflation building. New places open to drill for oil will be a problem for the high cost option, fracking.

Beware of margin and reduced covenants. The US continues to be in a good position relative to other countries, which isn't saying much, but this will give politicians an excuse to spend and blame the fallout on others. Active investment strategies will do better over the next few years than passive ones do, but only when value strategies are followed. Those running after last year's best performers will not do well. The FANG (Facebook, Amazon, Netflix, Google) stocks will not all continue to explode upwards.

Will passive strategies create their own form of bubble? Yes, but it is not clear what it will look like. Many ETFs carry basis risk by not investing in the entire group they represent. This is a concern since a selloff won't be evenly distributed across all assets, but will be driven by those with the most leverage trying to sell their most liquid positions. It's a good time to reduce or eliminate any leverage associated with trading.

A lot of consultants will offer to solve your risk appetite issues, but they all assume that it is a constant. Risk appetite is not steady; it varies with volatility and the time we have been in a period of growth. If someone is honest they will admit that they were scared to death in 2008 and willing to accept the extra risk for return proposition in 2006. How did that work out?

When everyone is on board with culture, and everyone agrees, is anyone really on board? If contrarian views are missing then a period where risk is growing ensues.

At the May 2017 Berkshire Hathaway meeting, where Warren Buffett and Charlie Munger take questions for six hours, there were two common themes. Both are reactions to existing companies and their business plans. Amazon has gotten so big and so efficient that any mention of their entry into a new sector (e.g., pharmaceuticals following the Whole Foods acquisition) sends the firms in that sector down. Their ability to scale up and add product quickly, and to try new things, make them a very hard competitor to compete against. Perhaps only letting Chinese competitors like Tencent and Alibaba into the US market will find Amazon susceptible since their market price requires their limited profits to date to grow for a long time and at a high rate. The other competitor is 3G Capital, and it is their business practice of zero based budgeting that scares potential acquisitions. For example, they have purchased Kraft and Heinz, reducing costs to increase profits. Each expense needs to be defended before each budget cycle. It remains to be seen whether they really want to run these companies or will spin them off in an IPO or sell to their capital rich partner, Warren Buffett and Berkshire. But the number of potential acquisitions has been reduced dramatically since they first brought the method to the US. Companies throughout retail and food in particular have been gutting their own expenses, making it harder for 3G to gain entry but also changing the culture of the firm. Some may find that the new culture is not as family friendly and decide to sell anyway.

Here are a couple of items based on recent articles I read. I have tried to keep the companies anonymous.

- If your risk manager's goal is to focus on working smoothly with the product team, the company will have problems during the next crisis. While you have to work together, a certain amount of tension is useful. This is why I always encourage companies to rotate their outside risk consultants. Unfortunately I am the only one making that suggestion so companies don't return to me and I don't get crossover business. ☹
- I recently read an article where the insurance company CRO, with an investment background, talked about the importance of not being an actuary to be the CRO. I was astonished. As an actuary I have had training in most of the parts of an insurance company, including all the primary financial techniques that can get you in trouble. (I have completed research on insurance insolvencies) Just as most CROs need someone with investment background to be able to challenge the CIO, someone without actuarial expertise likely has little feel for the nuances of liability risk that are accepted. This strategy can work if your risk team is responsible only for process, but that job doesn't pay much. This interviewee in

particular seemed to think a lot of their expertise, but it's a company that I think has added a lot of liability risk recently. I hope he is as right as he thinks he is. (this might not bother me as much as it does if it wasn't my third example of hubris from this company over the years – it's one of my favorite leading indicator examples)

It's a time for learning about unknown knowns. There are many unique factors (leverage, monetary and fiscal policy) that make it hard to look to history when making investment decisions. Once it calms down you can implement what you learned.

Expenses are another factor in the individual's control. Our personal investment expenses were less than .5 bp in 2017, based on 2% rollover, well below the 8-10 bp charged by index funds.

Russia and China continue to accumulate gold. The dollar should continue to rise, making it very hard for exporters. The investments to look for are companies with US monopolies once imports are turned off. This should result in pure profit for them as prices can rise with no increase in quality or volume. Warren Buffett's Berkshire Hathaway should do well, and the tax plan will help BRK as well. Look for them to sell some long-term winners once they use some of their existing pile of cash (over $100 billion). ☺

While geopolitical tensions seem highest in North Korea, I worry more about the Middle East, China, and Europe right now. If Trump keeps off twitter going forward I think North Korea starts to recede into the background and China will address the situation quietly. An Iran/Saudi Arabia confrontation is coming. We don't need to be involved, but we will get pulled in. Russia is selling as much oil as it can, and asking for gold in return. Their central bank president seems to have a plan but her cards are not strong unless the price of oil increases. They seem to be betting on a Bretton Woods type negotiation and want a seat at the table that gold assures them.

The South America issues will cause some problems in the US, mainly in Florida and any groups helping individuals to stash money in US$. Assets in China are trying to leave so quickly that the government has imposed restrictions, recently outlawing bitcoin due to its anonymity. Housing bubbles are growing everywhere, especially where airports have direct flights to China (US, Canada, Australia especially). Venezuela continues to implode, but other South American countries are stabilizing.

Bird flu has returned to Europe. Other viruses will also return over time. China is very fragile right now as politics are driving economics. The US needs a backup plan if Saudi Arabia falls. Africa is the next migration problem, leaving some to question the efforts of philanthropists there. Climate change and other sustainability issues are making water and other resources the driving force behind regional conflicts. This will only get worse, and an isolationist US is not going to help. Is a Pence presidency more worrisome than what we have now? A Trump resignation prior to the 2018 or 2020 election could lose much Democratic momentum. Who will run for the dems? Realistically I hate to say it

but 2020 might be better fought by a white male to avoid firing up the Republican base. The Democratic leadership needs to turn over for them to win (especially Nancy Pelosi).

I learn more about climate change every year. It is fascinating how little we really know, and how often when something new is learned that it makes things worse. The shrinking Arctic ice sheet's impact on the jet stream, the sinking of the ocean floor due to the heavier weight on top of it as glaciers melt and water expands, and the important role of methane (cow belches, not farts) in global warming. Unfortunately, many in the media (I notice it most in the WSJ) feel it is their duty to balance pro and con articles and the articles that argue against climate change should be challenged prior to publication (but aren't). An emerging risk that I hope is far off is a shifting (swap) of the magnetic poles. This happens occasionally but little is known about how it would interact with humans or technology.

The White House has spent the year trying to cleanse government servers of the words "climate change." It's nuts. I just wrote a 5,000 word essay for the Society of Actuaries on climate change so won't go into it here, but I believe it is real and should be addressed. In fact I think it may be too late for a carbon tax to work and wish we were spending money and resources to scrub carbon from the air and oceans. The problem is that the rate of change is destroying biodiversity (plants and animals can't evolve quickly enough to survive). I am very pleased that I don't live on the coasts, and would be buying up Great Lakes land if I was Ted Turner or John Malone rather than Montana due to the fresh water.

I am still in search of moderates, and based on votes on taxes, immigration, gun control, and climate I plan to vote against each incumbent in the 2018 national election.

When the European Union breaks apart it will be a problem for both those in the south and those in the north. Germany's exports are nearly half of its GDP. When they lose the Euro as a common currency their economy will implode as their currency strengthens. It will be easier for those in the south like Greece to devalue and regroup. I still think Brexit will end up a good thing for England due to the timing, getting out before the big problems. The politics, most recently in Poland, is in addition to these issues. The Middle East is setting up as a battle between Iran and Saudi Arabia, with Turkey a wild card that likely determines the winner. There is little reason for the US to participate, but Israel and Europe are likely to pull us in due to reliance on Middle Eastern oil. I think North Korea would calm down if allowed to keep a single nuclear weapon.

The China risk is rising, especially if the rest of the world goes into recession as they are so reliant on exports. Climate change has a huge impact on this area due to cyclones, but the biggest risk is still that China has little in the way of resources and will eventually need to partner with or conquer other countries that do.

Some scenarios are completely discounted by the public but have probabilities over the next decade or so that are material. Extreme events happen every year. They are rarely identified in advance. Weather based events were dominant in 2017, with multiple

hurricanes/cyclones, wild fires, flooding, drought, etc. etc. etc. Drought and atmospheric rivers recently showed the devastation a combination of events can cause in California.

Much like any other ecosystem, the economy is a complex adaptive system so short-term forecasts are unlikely to be accurate. Stocks have now risen for nine consecutive years, a record. The recent tax bill increases the value of firms, but most of the recent rise has been due to P/E multiple expansion. Markets need to pause and catch their breath as most companies are overpriced. I still think winners are companies with domestic monopolies and small caps where exports are not key to their value. Berkshire is well positioned for a correction, with over $100 billion in mostly Treasury bills. More companies are following the European model of private ownership of businesses, making it difficult to find undervalued yet publicly traded firms. Those are being bought out by private equity firms. Although I am forcing myself to make a purchase each month, based mostly on stories driven by demographics and defense (oil firms are now defense stocks – the next war will still be fought with oil), but few firms make it through my stock filter and we continue to have larger than normal cash positions. Despite January's gains, it would not surprise me to see stock prices down 20% or more this year, with a small chance for 50% drops over the next couple of years (I made this same prediction for 2017). This may be delayed due to the tax cut, but will make the recession/correction stronger when it does occur. The dollar remains the reserve currency, mainly due to a lack of acceptable substitutes. I expect rates to rise in the short run, but eventually demographics and slow growth could easily take them lower again. This is a big deal for savers, especially pension plans and insurers who each are required to guarantee positive nominal returns. The dollar has weakened and the renminbi has become the "hot potato" currency that no one wants. China recently outlawed bitcoin as its citizens tried to use it to get money out of the country. China's next recession will cause them to sell US Treasuries and buy yuan, so yields will go up in the US and the yuan will strengthen when their export market needs it to weaken.

I have read several books on financial and geopolitical cycles recently and have always thought that history repeats. While I am not as sure I can count the specific number of days until the next event as some authors suggest, I agree that cycles force you to think longer out on the time horizon and this is useful. The consensus is usually wrong.

Outlier (Qualitative) Scenarios

Here are some outlier scenarios I think are more likely to happen than consensus in the next several years (some may not happen for a decade or more). Due to the long-term nature of these scenarios, in some years they might not change or only slightly be tweaked.

- Cyber-terrorism impacts the banking system or shuts down the power grid
- Space junk knocks out a satellite used for public communications
- Atmospheric river hits California and dumps rain on the west coast for a month – seems more likely as jet stream weakens
- A severe earthquake (or volcanic eruption) hits California, St. Louis or Seattle

- Super-volcano becomes active somewhere in the world (US option is Yellowstone): longer time horizon
- Magnetic poles will switch between north and south: longer time horizon
- Fracking is declared illegal in the US or Canada due to environmental impact
- China erupts in civil war or regional conflict with a neighbor over resources – most likely fresh water or sea-going route
- Eurozone breaks apart – could be north/south, poor countries/rich countries or just kicking out individual members
- Venezuela erupts in violence, shutting down their oil industry and leaving South America a regional hot spot – this has already started
- A severe virus develops drug resistance and becomes transmissible by air
- Antibiotics fail to work against a common bacterial infection
- Iran encourages regional conflict and becomes the Middle East's consolidating superpower against Saudi Arabia (you may have sub-scenarios with alternative conclusions about how the Russia/US/Iran/Turkey relationships qualitatively play out)
- Water resources trigger a regional conflict (likely Himalayas, Middle East, or Europe)
- S&P500 down 30% from high point, combined with double recent bond defaults and real estate collapse in the largest US/Canadian coastal cities. (increase until it becomes a solvency event so you can strategically determine hedging strategy)
- GDP down for 3 consecutive years.
- Climate change leads south Florida to become unlivable and becomes a leading indicator for other changes (reduced biodiversity, sea level rise, increased strength of convective storms): slow, painful, and so far unimagined by the market

While I tweaked some of these, there were no major additions. I added magnetic poles as it is another long-term event that has not happened for a long time.

These predictions were made in January 2018.

- Politics and currency wars: Prediction – Donald Trump is a geopolitical disrupter. The 2018 mid-term elections in the US could be a major swing to the left (especially if Pelosi is replaced and Obama campaigns). Europe is a separate story, with eastern regions moving right. I expect the dollar to strengthen as Quantitative Tightening continues. The velocity of money will pause before continuing to drop. There is a lot of uncertainty about this, but I expect the Fed to increase rates a couple of times and continue QT to offset the new tax law. They may need to back off late in 2018 if a recession has started. Iran and Saudi Arabia will start to provoke each other, but it will take several years before war breaks out. The UK Brexit timing will turn out to be fortuitous. China is my big worry, with currency and regional tensions being a problem. Cyber wars are coming. All should have cash reserves on hand. It may be an accident rather than intentional. An attack on the electrical grid has become increasingly realistic. Preparation for

network shutoffs, whether intentional or accidental, will pay off. Something will go wrong.

- Political sidebar: (from 2017 predictions) a fun game has been to wager how long before Trump is impeached, or how long before his advisors are sent to jail. Both are impossible to predict, and I don't bet, but my money is still on Jared Kushner. He's involved in too many things and not high enough in the structure to stay clean (unlike Ivanka). Most likely is he gets caught selling influence. Update: money laundering now seems likely as well.
- Geopolitical: as the US becomes more protectionist and less willing to guarantee the peace around the world, this means there will be more regional conflicts. Some will escalate and we may get pulled in anyway. Although I prefer to be proactive, an inward thinking US in the 1930s was able to quickly ramp up using the latest technology once we entered WW2 rather than having to scrap earlier preparations (although since it was struggling to exit a depression that might not have been a big deal). After being in the spotlight throughout the last presidential election, Mexico has stayed in the shadows. Hopefully they are building infrastructure to be a place where immigrants are welcome. Many from further south would love to move to a safer location with job security. There is an opportunity if a free economy can be maintained.
- Stocks and general economic conditions: I keep waiting for equities to have a correction that sticks. US markets are overdue, and the Fed increases may be the catalyst for a 30-40% drop. I suggest avoiding businesses that rely on retail exports from the US as the dollar eventually strengthens with monetary tightening. Global volatility will resume soon, with emerging markets the losers. Contagion may follow. I continue to avoid bonds. My preference is to use highly rated dividend stocks for this type of exposure, with yields about 2%. I see the economy performing okay initially in 2018, with a recession (or more, depending on how it is handled) later in the year as monetary tightening kicks in. The tax cuts may make the Fed move faster than they would have otherwise. The heavy turnover on the Fed makes their actions uncertain. I expect consolidation in the insurance industry as foreign buyers seek diversification and US domiciled firms take advantage of the strong dollar. The S&P 500 closed 2017 at 2,674, up 22% (total return) for the year. I wrote an essay titled *The Risks of Driverless Investing* that will be released publicly in 2018. It considers the downsides of passive investing.
- Unemployment: Structural unemployment has risen in the last decade as it becomes harder to go between jobs or move to the gig economy (locked into mortgage or health insurance, last in first out mentality for layoffs). Pension plans are doomed for failure, with funding levels at companies 30% below that needed and multi-employers practically wiped out, even after 9 years of gains. I expect the unemployment level to rise by the end of the year from just above 4% in 2017. The next generation must become lifelong learners as artificial intelligence replaces jobs and lifespans extend.
- Residential home market: US regions continue to have lower correlations with each other, but coastal cities with direct flights to China and South America are heating up. Bubbles are forming as Asian currency seeks an outlet (e.g.,

Vancouver, Toronto, Seattle). Miami seems to be a home for South American money seeking safety. This will interact with climate change in a bad way for real estate in south Florida.

- Volatility: The VIX closed 2017 at 11.04. I have thought for several years that if VIX was a predictor of the future it would be higher. Known risks include heavy personal and government debt levels, and loose monetary policy. I find it impossible to predict VIX but I think a reasonable "normal" range when debt is this high would be at least 20-25. A single digit VIX is definitely too low and above 35 is too high, but as usual I see more possibilities for a higher result going forward, especially if we experience both a recession and 20% drop in the stock market. I am not an options expert but wonder if this assumption has undervalued the cost of volatility in those markets. There must be a better metric to reflect risk.
- Oil: WTI oil at the end of 2017 was about $60 per barrel. I have no ability to predict the price of oil, but the combination of OPEC limits and frackers close to or below breakeven makes it likely that the next spike will be due to a geopolitical event. Currency wars also play havoc with the oil price. Energy is about as complex as financial markets get. I have recently taken a position in Chevron as a proxy for the defense sector, making a bet that the next war will be fought with legacy fossil fuels.
- Credit risk: I am still worried that much of the junk bond issuance recently has been to fracking companies that struggle due to the price of oil. Watch out for defaults here and in emerging markets where the strong dollar causes problems for dollar denominated bonds. These issues will cause spillover in other markets and industries as hedge funds sell "safe" assets to cover losses. US junk bond spreads will widen soon as their cycle continues.
- Currency/Inflation/Interest rates: The dollar should be strengthening due to monetary tightening but is not. There is a variable I (and others) am missing. I am currently working on a research project with Mark Alberts that focuses on a low growth scenario and how it would impact the insurance industry.
- Fed policy: Due to lack of proactive planning, made worse by the current administration, the US is susceptible to a large catastrophe, financial disaster, or armed conflict. Puerto Rico needs funding to rebuild, and infrastructure spending should have been prioritized over tax cuts for the wealthy. I'm still waiting for carried interest to be taxed as income.
- Tax policy: The recent tax bill lowers revenue so will be expansionary. This makes it harder for monetary policy to do its job. The repatriation of overseas profits will provide a temporary offset, and some corporations who hold securities in their portfolio can now sell some of the gains. Berkshire Hathaway, where I focus in my March newsletters, will likely sell some of their long held positions this year (perhaps American Express).

Emerging Risks - Concerns

- Infectious disease - increased resistance to antibiotics (e.g., tuberculosis, staph infections or pneumonia), coronaviruses, Ebola (and similar), avian flu types that

are transmissible by air. Mosquito borne diseases are making a comeback led by Zika and Dengue, moving north.

- Global warming – unexpected side effects like new viral/bacterial attacks, along with coastal flooding, wildfire/flooding combinations, more concentrated coastal storms at unusual times of year, stronger and more frequent convective storms, and shifting weather patterns that impact farming through changes to the jet stream due to the shrinking Arctic ice flow. It is going to be increasingly difficult to be a farmer over the next 50 years as climate warms and modifies. Whether we like them or not, genetically modified foods may be the only thing that adapts quickly enough. We'll continue to see extinctions as conditions change too quickly for most species to adapt and biodiversity shrinks. Record high temperatures for the planet persisted post el Nino – this is a very bad sign (previously the 1997 el Nino results had been used by deniers as a reason why the earth was cooling – look how high this data point is relative to today). Look at a graph of all data points rather than comparing single year data points to avoid cherry picking. It makes it too easy for climate deniers to lie with statistics. Statisticians need to police the use of statistics to align incentives. The solar cycle has been argued to be the driver of this warmth, but the current cycle has been weak and would be cooling the planet. The real estate market in Miami should blow up in the near future, but to date shows no signs of doing so. I recently wrote an essay titled *Was Malthus Right, just Early?* that will be released publicly in 2018.
- Earthquakes and hurricanes – the US is overdue for a major quake on the west coast and areas not normally thought of for seismic activity due to long dormant periods (e.g., Seattle, St. Louis, New York City) are well into their cycle. The weaker jet stream is leading to more atmospheric rivers, and combined with the wild fires will create havoc. (so far they have lasted only a few days but historically could last a month) The drought is strong enough that there is no longer a season when wildfires are not common in California and Australia, and other regions in the US are also at risk due to the pine beetle infestation combined with drought. Due to warmer air, more moisture is held by the atmosphere, with unknown results (so far it looks like this breaks up hurricanes but leads to stronger convective storms and nor'easters). The additional weight causes breaks in the earth's crust under the ocean, adding another risk to fracking beyond the earthquakes caused in areas such as Oklahoma and the Netherlands.
- Levees in California, water poisoning in big cities, cyber hackers, transportation of oil and oil based products via rail through urban centers (e.g., downtown Chicago) are all regional risks.
- Malthus – too many people, not enough resources – will good intentions of the rich to save lives in Africa lead to increased systemic risk for society (mass starvation, unstable regions, forced migration, even genocide) in the longer term? Are there unintended consequences associated with the "giving pledge" by the rich? How do these complex systems interact based on changing and fast moving inputs? Is it really so bad to have aging demographics, changing immigration trends, and shrinking populations? Demographics are destiny. Should we look at GDP growth by splitting it between population growth and productivity growth?

In the long run we are more susceptible to war, famine and disease through population growth, and this interacts with climate change issues. What happened to the Zuckerberg foundation model to rebuild infrastructure?

- Student loans – not only will millennials default due to student loans, there are many instances where their parents co-signed for them. These retirees are seeing their Social Security checks garnished. This situation will have much more impact on the economy in the future than we have seen previously (negative).
- Concentration risk – this will be a hot topic over the next few years. Whether it is power at the top of an organization (moron/hubris risk), short term liquidity, geographic focus or silo risk focus, too much concentration in too few entities or people is a great risk. Eventually it will take you down, especially if leverage is involved. Margin debt is at record levels, not a good sign. Identifying concentrated exposures should be a focus during strategic planning efforts at companies. Concentration risk also increases contagion risk. Less focus should be put on fancy econometric models and more on simple exposures and their downside impacts.
- Terrorism – in the US, political extremists may become active leading into the next election cycle. It amazes me that we have not had more attempts to injure politicians, especially with the lack of gun controls. So far it is mostly white males doing the damage to random victims.

Top Actuarial Issues

- Defined benefit plan valuation – valuation methods need to be revamped to front end funding levels for both private and public plans. Assumed returns remain orders of magnitude too high. I would suggest using nothing higher than 5%, with a cap using the most recent 10-year geometric mean, and that might need to be lowered. Fiduciary standards should require conservatism in pension assumptions.
- ORSA/PBR implementation – regulators have moved toward checklists with ORSA, but can still make it worthwhile if they outsource review of the reports to experts who understand how risks aggregate and diversify. PBR has baked in conservatism (percentile) on top of conservatism (margins). When a complex system includes margins the results embed unintended consequences.
- Product design – be sure to look at exposures in case hedges are not available. The gross exposure is more important during a crisis, while the net exposure drives results in most circumstances. A concern I am seeing is that companies are adding the NAIC 1000 scenarios from the ESG (Economic Scenario Generator) to their cash flow testing because of the mean reversion feature. Results are better than from the NY7. As I've shown in my research papers, in this environment the ESG provides best case results.
- Obesity/smoking/biomed technology – how will the various drivers of mortality and morbidity interact (some good, some bad)?
- Health care – the Republicans touted that they destroyed ObamaCare, and there is more truth in that than they understand. By taking out the individual mandate it will destroy the market as insurers drop their product. I worry that we are moving

toward antibiotic resistant bacteria as research is discouraged, and we are definitely not prepared for an influenza pandemic.

- Systemic risk – too many insurers rely on FHLB for capital infusions during a crisis – it has not been tested and may not play out as expected. I believe there is systemic risk in insurers, but only when they all play “follow the leader” with sales, investment, or product design practices. Many are currently adding longevity risks by accepting payout annuities. A cancer breakthrough could be solvency threatening.
- Over-reliance on the normal distribution – I would like to see life actuaries train with their casualty brethren and learn more about power laws that appear to represent the tail distributions better than bell-shaped, normal, distributions.

Predictions from January 2012

I posted my first annual financial predictions in 2007. Each year I will look back and share interesting comments I made that seem accurate in hindsight. I have deleted sections but not changed the wording in what remains.

These (mainly) economic predictions were made in January 2012. Recall that this year featured a presidential election where Obama/Biden defeated Romney/Paul Ryan.

- Politics: Prediction – Romney/Gingrich (need someone from the south who isn’t crazy) over Obama/Clinton (Hillary). The economy will improve in 2012 but continues to add jobs at a lackluster pace. Watch for tensions to increase in Venezuela and Russia, with North Korea another obvious concern. Syria will fall to the Arab spring, Egypt will become pro-Iran and Iraq becomes influenced by China.
- Stocks: Over the next 10 years stocks will outperform both cash and especially bonds. Good companies to buy now are ones that can pass on their inflationary cost increases to their customers like those in the transportation (e.g., railroads) and energy sectors. Based on my filters here are a few companies that appear to be undervalued based on publicly available information (not recommendations, just ideas for further analysis) and year-end prices: Peabody Energy BTU 33.11, Xerox XRX 7.98, Walter Industries WLT 60.56, Tidewater TDW 49.3, HanesBrands HBI 21.86, Cummins CMI 88.02 and Johnson Controls JCI 31.26. The S&P500 closed 2011 at 1258. Full disclosure: my family owns shares in each of these 7 companies. None are controlling positions. ☺
- Unemployment: Structural employment provides a floor of about 6% now, and public employers are not done with their staff reductions. Older workers will continue to struggle at the same time they know they have to work longer before retiring. The municipal market is still at risk of perceptions that drive spreads up, and some states and municipalities will default.
- Residential home market: we’re not completely through the housing bust, and foreclosures will continue, but regional improvements will continue in 2012 for all but the highest end homes. Apartments and home rentals will continue to grow

as economic reality takes hold. Not all markets will move together as regional diversification returns to the marketplace and it begins to loosen.
- Volatility has itself been volatile over the past couple of years. Too many investors are looking at VIX as a predictor of the future and there are too many big risks, both known and unknown, that should increase this statistic.
- Oil: If oil prices fall below $50, political instability in Russia and South America will quickly follow. Watch Venezuela for problems. As the technology to derive oil from shale increases supply, tensions in the Middle East, Russia and South America pull prices up.
- Credit risk: there is not enough transparency to know how close we are to yet another blow up, but signs are abundant that credit risk is growing again. Liberal covenants, personal loans, and insurance guarantees are increasing credit risk.
- Financial Services Consolidation: Expenses at insurance companies are too high and industry overhead needs to be reduced. Insurance consolidation will accelerate, with household names and smaller firms being merged out of existence.
- Currency/Inflation: The next great threat to dollar dominance is a resurgent German led Europe or China, and both are several years away. Resource shortages (food, water) will drive regional conflicts.
- Fed policy: low rates will continue through the election, encouraging leverage. While consumers have trouble accessing it, private equity firms have no concerns about borrowing.

Top Actuarial Issues

- Defined benefit plan valuation – Valuation methods have led defined benefit plans to be little more than an off balance sheet Ponzi scheme. Focus should be on cash flows rather than regulatory requirements.
- Product design – Why is it conservative to force asset allocations toward bonds in a low interest rate environment? Have insurers considered a hyperinflation scenario? They should.
- Obesity – how will the various drivers of mortality and morbidity interact (some good, some bad)?

Hopefully these annual letters look at things from a slightly different perspective than you see from others and make you think. That is my goal.

Happy New Year!

Warning and disclaimer: The information provided in this newsletter is the opinion of Max Rudolph and is provided for general information only. It should not be considered investment advice. Information from a variety of sources should be reviewed and considered before decisions are made by the individual investor. My opinions may have already changed, so you don't want to rely on them. Have fun!