

Newsletter – 2015 Predictions/Results

My name is Max Rudolph. I consult with companies on enterprise risk management, asset-liability management and strategic planning topics. I am a private investor focusing on individual stock selection and value investing techniques. In addition to work for companies, research and continuing education, I am also an adjunct professor at Creighton University. I believe you can reduce risk and increase return simultaneously. I live in Omaha, Nebraska, USA, am credentialed as an actuary and hold a CFA charter. I write a monthly newsletter and each January post my predictions for the year. Late in the year I review and analyze what actually happened during the year. Some topics are written at a high level, dealing with the general economy, and some are more detailed. Most cover issues that I am stewing over and need to do a brain dump. I am a lifelong learner so read a lot, and that impacts how my current thinking evolves. The newsletters are educational in nature and do not constitute investment advice. They are released publicly at www.rudolph-financial.com with a delay after they are released to subscribers.

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You can also follow me on twitter @maxrudolph.

- Results: This document does not change anything from what I wrote early in 2015 but adds sections that discuss the results.

Predictions for 2015

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

Over the past year a perceived stability has given way to a currency war that is interacting with an oil glut to produce some strange bedfellows. The United States was ahead of the curve here with its quantitative easing programs so its exports and profits have grown, allowing the dollar to continue as the world's reserve currency. Debt levels are high and

growing, yet most of Europe sees negative interest rates on government debt. Trust in the financial system is still intact, but it feels like we are sitting at the bottom of an avalanche zone with snow continuing to fall. It is unclear how it will play out, but somewhat surprisingly to me the US seems to be in the best position. Unfortunately this often means that the law of unintended consequences and surprises is about to dominate. Geopolitical tensions have started to dominate, with Venezuela, Russia, Iran and China about to lead their regions into a highly volatile period. Even the United States and India have literally run to each other as everyone else lines up against them. China has alliances with countries in South America and Africa, and is doing business with Russia. More of this trade is being done in currencies/commodities other than the dollar. The trigger will be something unexpected. We should enjoy the calm before the storm. Climate change and other sustainability issues will soon make water and other resources the driving force behind regional conflicts. In other locations, like Brazil and California, water needs to be priced appropriately to allow market forces to adjust. Financially the signs continue to point toward both deflation and inflation. The FOMC is dovish with Janet Yellen at its head, with Mario Draghi her counterpart in Europe. We wait until the last minute to deal with problems, and some day our luck will run out.

- Results: I'm pretty happy with this paragraph. Some things have changed during the year but it was a pretty good analysis of where we stood at that time.

At this point President Obama is a lame duck with two years left to govern. Will Republicans work with him or maintain a freeze until 2016? That looks likely to me, but I always hope somewhere moderates will appear to make things right. Recent economic growth has been driven by fracking, and at this point in time does not look sustainable. Hillary Clinton is the Democratic frontrunner, and Jeb Bush is her likely opponent. There is lots of time to screw up in the meantime, and if the economy is not growing I expect Senator Clinton to bow out. Europe is a mess and dug itself deeper with the Greek anti-austerity party taking power there. The new QE Europe is a move toward allowing countries to leave. The Middle East is very hard to read over the next 10 years. None of the countries there has successfully diversified away from oil, so some say they will be living in tents again within a generation. Iran is the wild card and has grown its influence. China has financial, structural and political stresses pushing it and will be challenged to generate a soft landing. I will be surprised if Russia and South America do not have major problems in 2015. Australia will struggle as commodity prices falter.

- Results: Another pretty good analysis, despite not anticipating Donald Trump's bizarre presidential race to date. Jeb Bush has fallen behind, perhaps so far that he should drop out. Clinton remains the frontrunner for the Democrats, with Bernie Sanders likely to fade by March 2016. The geopolitical issues were right, with Russia and most of South America at a cross roads.

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. Geopolitical risks blew up in Ukraine in 2014 and Hurricane Haiyan in 2013 was a massive event, but extreme events overall were limited once again

in the US last year. One exception that should be watched for a recurrence is the California drought. The economy has so many interconnected variables, acting like a complex adaptive system, that forecasts are unlikely to be accurate. In recent years fracking provided excess oil supplies that improved current account balances in the US, made the Middle East less important politically, lowered government spending and Chinese investment in Treasury bonds. Then in late 2014 the Saudis elected not to support prices and they crashed. There are multiple reasons, with frackers, Russia and Iran likely in the bulls eye. What will the US role be in each region? Stocks have risen for six consecutive years. Seven would be a record. Prices are high, a long lasting correction is overdue, but it needs an external event to drive it. The dollar remains the reserve currency despite loose government policies. How much is real and how much due to bond yields manipulated lower by the Fed? 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.

- Results: many of these situations have proved to be long lasting, such as the California drought (recently getting some relief) and the oil saga. Late in the year the US allowed oil to be exported, but it's not clear why. My guess is that it helps frackers try to avoid bankruptcy by opening up the spigots.
- Cyber-terrorism impacts the banking system or shuts down power stations
 - Results: cyber hacking hit retailers, government and health insurers especially hard. Many boards think insurance is the answer but should focus more on making it harder to sustain a breach.
- Space junk knocks out a satellite used for public communications
- Atmospheric river hits California and dumps rain on San Francisco for a month
 - Results: smaller atmospheric rivers have appeared in California early in the year and in the northwest in December.
- A severe earthquake (or volcanic eruption) hits California, St. Louis or Seattle
 - Results: Oklahoma continues to experience fracking induced earthquakes but other regions were spared anything resembling the "big one".
- Super-volcano becomes active
- 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
 - Results: The hard landing in China is again an increasingly likely event.
- Eurozone breaks apart – could be north/south, poor countries/rich countries
 - Results: this continues to be more likely, with the British referendum likely to start discussions elsewhere.
- Venezuela erupts in violence, shutting down their oil industry – contagion in Argentina and Brazil risk making this a regional hot spot
 - Results: all three of these countries have major issues at year end 2015, but each have moved in different directions.
- A virus develops drug resistance and becomes transmissible by air

- Results: Ebola, MERS and influenza were mostly quiet by the end of the year. Antibiotic resistance is nearing a tipping point. This will be a big deal.
- Iran encourages regional conflict and becomes the Middle East's superpower
 - Iran's strategy is interesting in that it signed an agreement with the west while continuing to support conflict in Iraq and beyond.
- Water resources trigger a regional conflict (likely Himalayas, or Europe)

I did not change any, and added only the last item for 2015, but several are much closer (e.g., Ebola, Venezuela, cyber risk, China).

These predictions were made in January 2015.

- Politics: Prediction – President Obama is trying to play the oil card both ways, and will get caught. He threatens to block the Keystone pipeline but economic growth during most of his two terms has been driven by fracking. Now that he is a lame duck President with a Republican Congress he will use executive orders like he did on immigration to leave a legacy. It will be interesting to see if health care reform is far enough along before he leaves to make it sustainable. Who will the Republicans run for president in 2016? Jeb Bush is now the frontrunner with Paul Ryan and Scott Walker strong candidates. Someone may yet come out of the woodwork. Hillary Clinton remains the favorite on the Democratic side, but I think she will drop out (leaving a free for all). The taper, along with devaluations in other countries, has strengthened the dollar. There won't be any rate increases from the Fed until at least 2016 as Europe will continue loose policy. Their loose policy works as if we had raised rates. Venezuela will pull Argentina down, leaving all of South America in turmoil. While Saudi Arabia seems to have managed their transition well this time, Sunni and Shia tensions are building. Europe will set up a structure so they can kick out some members. Greece is first, but Italy and France will eventually follow. Deflation and negative interest rates in the region makes the inevitable day of reckoning sooner than expected. Japan has been the most aggressive in its currency war, but eventually will implode as demographics drive rates and economic growth lower. The risk of China experiencing an economic hard landing and consolidating around nationalism is increasing. This could have major consequences, everything from an internal revolt to a selloff in US Treasuries to a regional armed conflict about resources. The next major wars will start in cyber-space, as all parties are probing for weakness and hiding in the shadows. The US and India as allies make for interesting bedfellows.
 - Results: Hillary Clinton is the de facto Democratic nominee, while mainstream Republicans pray for a sane candidate. The Keystone pipeline was not approved and a Climate Conference generated a weak mandate. The Fed nearly made it through 2015 without a rate increase, and the current 25 bp level is anemic. Other countries continue their loose monetary policies, strengthening the dollar. Oil continues to price below \$40/barrel and the US now allows oil to be exported. Europe remains

strained but did not lose any members. Oil has made for a challenging environment in Saudi Arabia. Tensions are increasing everywhere but did not go over the edge.

- Stocks: Now that tapering has ended and the market did not implode, we are entering a trader's market with limited value stocks to buy. The US market remains due for a correction but it is unlikely to be a crash unless sparked by an event. I continue to avoid bonds, using highly rated dividend stocks (not the highest rate but the most consistent) for this type of exposure. The US consumer is no longer delevering, but I think this is due to student loans. While single year predictions are unlikely to be right, plus 5% to minus 20% seems a reasonable range for 2015. I still believe that over the next 10 years stocks will outperform both cash and especially bonds. Interest rates will either spike or remain low with possible deflation over time. Maybe both, which is the disaster scenario. Slow and steady up, most modelers and the Fed's proverbial soft landing, is unlikely. Higher rates are equivalent to a currency devaluation unless other countries make the same move. There is a slight chance of hyperinflation in the United States, but much higher elsewhere. It will take a few years for inflation to develop before suddenly appearing. Good companies to buy now are staples that can pass on inflationary cost increases to their customers while remaining low cost producers. Avoid life insurers until the regulators get serious about interest rate guarantee relief, although I expect more consolidation as foreign buyers seek diversification (Protective/Dai-ichi) and US domiciled firms take advantage of the strong dollar. 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: Gilead GILD 105, Winnebago WGO 20, Whirlpool WHR 200 and Terra Nitrogen TNH 121 (long GILD WGO WHR). The S&P500 closed 2014 at 2,059.
 - Results: I had trouble finding stocks to buy all year, and ended up converting a lot of energy stocks to cash early in the year and left it mostly there. The S&P 500 total return was +1.40%, at the high end of my range, and positive for the seventh consecutive year. There were surges of volatility along the way. The dollar strengthened and oil weakened throughout the year. Many of the same companies make it through my filter at the end of 2016. I added to or established positions in GILD RCL WHR TRN BX KHC CVS BRKB. I closed positions in WHR CHK PJT VMI and reduced HBI GME. I do not have high hopes for 2016 absolute returns and believe that Hillary Clinton would have an easier time running for President representing the party that was out of power. The S&P500 closed 2015 at 2,044.
- Unemployment: Structural employment provides a floor of about 6%, but this is confusing as the labor force participation rate is still reducing so inconsistent with prior data. Pension plans remain at risk, with funding levels 20% below that needed even after 6 years of gains. Recent recommendations will do little to save this market as valuation is the problem and it is not being addressed. The life cycle of a DB plan lags that of a company so full funding in the early years is critical. The rules continue to defer funding, increasing the risk of failure. The

- latest “fix” is for an insurance company to buy the liabilities, but for the participant this is not a good deal as the PBGC has access to the federal printing press so the guarantee is much stronger with them than with NAIC members.
- Results: generally correct. My former employer moved my defined benefit plan from the parent to a subsidiary insurance company and eliminated the PBGC premiums. It remains incomprehensible to me how a fiduciary or government body would allow this risk to so clearly increase to the employee with no payment.
 - Residential home market: US regions continue to have lower correlation with each other. Fannie and Freddie are another place we may see President Obama try to set a legacy. I’m still waiting for the Canadian housing bubble to pop.
 - Results: still waiting.
 - Volatility: The VIX closed 2014 at 19.20, in the middle of its annual range. 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 high would be 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 in 2015.
 - Results: VIX occasionally spiked but generally remained lower than I think makes sense. It closed 2015 at 18.21.
 - Oil: WTI oil on December 31, 2014 was about \$59, below my long-term mean reversion range of \$80-120. As more fracking comes on line and it becomes more efficient I need to adjust this range down to \$80-100. Once the Saudis have taken control of supply I believe they will manage prices back up into this range. This commodity will continue to be very volatile. Oil prices below \$50 are creating political instability in Russia and Venezuela and chaos could prevail in those regions. A geopolitical event or fracking concerns that drastically reduce supply are risks that could lead to a spike in oil prices.
 - Results: I got the geopolitical ramifications right but continue to find oil to be too hard to predict. The Saudis have lost control of the price, at least temporarily, and are having trouble funding their internal spending.
 - Credit risk: much of the junk bond issuance recently has been to energy companies that are now at risk. Watch out for defaults here and in emerging markets where the strong dollar is causing problems for dollar denominated bonds.
 - Results: this prediction is picking up speed as 2015 comes to a close.
 - Currency/Inflation: The US started the currency war with QE (named by Brazilians after the dollar slumped in 2010). Now Japan and Europe are taking a turn. At YE2014 the Eur/USD exchange rate had dropped to 1.22 (and by the end of January was down to 1.13. The dollar should continue to strengthen due to weak growth in Europe and Japan. At some point there will be no buyers, and then it gets serious with hyperinflation and defaults (watch VM).
 - Results: by year end 2015 Eur/USD had fallen to 1.09 and Japan rose to over 120 yen/dollar. This trend will continue into 2016.

- Fed policy: low rates continue through 2015. A pseudo tightening has occurred as everyone else has devalued their currency. This will hurt exports from US firms but lead to a boom in overseas travel as the dollar buys more than it used to. The US continues to be susceptible to a large catastrophe, financial disaster, or armed conflict.
 - This tightening will be problematic for Democrats as the economy and stock market both struggle in 2016.

Emerging Risks - Concerns

- Levees in California, earthquakes/volcanos, water poisoning in big cities, cyber hackers, transportation of oil and oil based products (e.g., downtown Chicago).
 - Results: there were several non-terrorism train derailments carrying oil, especially in Canada, but this seems to be tapering off late in the year. Hackers are everywhere, and scare me a lot.
- Infectious disease - increased resistance to antibiotics (e.g., tuberculosis, staph infections or pneumonia), coronaviruses, Ebola type and new avian flu types that are transmissible by air.
 - Results: the most recent Ebola and MERS events are subdued, along with influenza. The Zika virus has infiltrated Brazil and is moving north.
- Global warming – unexpected side effects like new viral/bacterial attacks, along with coastal flooding, more concentrated coastal storms, stronger and more frequent convective storms, and shifting weather patterns that impact farming through changes to the jet stream. 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 adopts quickly enough. In 2014 we saw extreme weather events in Boston and Buffalo (snow), Detroit and Phoenix (rain).
 - Results: 2015 ended with flooding events in the US and UK. Several strong cyclones hit the Asian Pacific coast. The weather at the North Pole was warmer than Omaha on December 31. 2015 was the warmest earth has recorded.
- 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, Yellowstone, St. Louis, New York City) are well into their cycle. I'm starting to worry more about an atmospheric river event in California. The drought is strong enough that there is no longer a season when wildfires are not common. Due to warmer air, more moisture is held in the atmosphere, with unknown results (so far it looks like this breaks up hurricanes but leads to stronger convective storms and nor'easters).
 - Results: landslides in Washington state occurred and were determined to be historically common occurrences. Cyclones were strong in the Pacific but weak in the Atlantic. The jet stream continues to stall out, leaving flooded areas next to dry ones.
- Malthus – too many people, not enough resources – will good intentions of the rich to save lives in the 3rd world lead to increased systemic risk for society (mass

starvation and unstable regions) in the longer term? Are there unintended consequences associated with the “giving pledge” by the rich? Is it really so bad to have aging demographics and a shrinking population? In the long run we are more susceptible to war, famine and disease.

- Student loans – not only will millennials default due to student loans, there are many instances where their parents co-signed for them.
- Concentration risk – this will be a hot topic over the next few years much as emerging risks have become. Whether it is power at the top of an organization, 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 currently high, not a good sign. Identifying concentrated exposures should be a focus during strategic planning efforts at companies.
 - Results: Bubbles driven by leverage and central bank manipulation continue to grow. Emerging market debt has started to pop.
- Terrorism – in the US, political extremists may become active leading into the election cycle. Anyone named Clinton or Bush may be targeted.
 - Results: terrorist activities in the United States became entangled with the gun rights activists and those they support in the US. Large scale events occurred elsewhere, but multiple death shootings in the US are now common. Our political leaders know there are basic steps they can take, but the political ramifications for saving lives through background checks and eliminating high capacity magazines and assault weapons are high. This is the voters fault.

Top Actuarial Issues

- Defined benefit plan valuation – valuation methods need to be revamped to front end funding levels for both private and public plans.
- ORSA implementation – regulators have moved toward checklists, but can make it worthwhile if they outsource review of the reports to experts who understand how risks aggregate and diversify.
- Product design – be sure to look at exposures in case hedges are not available.
- Obesity/smoking – how will the various drivers of mortality and morbidity interact (some good, some bad)?

Strategic Scenario Planning

Look at stress scenarios qualitatively and graphically in addition to quantitative focus. Consider a combination of several deterministic scenarios, including one where the Wall Street tool kit is not available.

Pick some of these to do every year, some qualitatively, some rotate every 3 or 5 years. Total stress scenarios should be 10 or fewer.

- Negative interest rates

- Spike interest rates over 10%
- Level
- High credit risk – double default rate for BIG assets
- Equities – down 35% and options market dries up
- Mortality – pandemic .6% excess mortality
- For companies writing indexed products – model/report separately – test product if derivatives market dries up
- Higher interest rates and inflation: grade 3% per year until you get to 12%
- Qualitatively consider 20% inflation environment (if you have annuities you should be testing 1,000 scenarios from the VM scenario generator)
- Low interest rates – Japan scenario
- Flat equity markets combined with higher inflation
- Falling dollar – combine with high interest rate scenario
- Global climate change – how will this impact your business and suppliers (e.g., look out 20 years to consider new agents or a mortgage in southern Florida, where over \$100 billion of property value is at risk from a 3 foot rise in sea levels)
- Liquidity risk – consider your largest markets and what would happen if they dried up or were regulated out of business. Have you accepted risks that you thought were mitigated? A core line of business should not be at risk here. If it is then it should be a satellite line. What would you do if no one offered a derivative position for you to hedge against? Are there protections written into liabilities?
- No diversification is allowed between risks. Do you have enough capital to survive?
- If you are ambitious run a scenario with equity markets down 35% and 10 years' worth of deflation

Predictions from January 2009

Since posting my first annual financial predictions in 2007, there are 8 years of history to look at. Each year I will look back 5 years and share interesting comments I made that seem accurate in hindsight.

- Economy: ...with Barack Obama about to be inaugurated as President of the United States...volatility and tough times will continue for a while. Obama will need to make some tough decisions, and the tone he sets regarding personal accountability versus political expedience will last for years. While the US has had many financial missteps lately, there do not appear to be other countries doing better.
- Oil will rise above the current range of \$40 per barrel. I believe its long-term mean reversion rate is in the \$80-110 range, but recent volatility has made any predictions very risky. The Arab Spring was an indirect result of oil prices, ethanol subsidies and crop shortages and could recur in several regions.
- Hospitals are at risk in 2009, along with municipalities who have offered more than they can pay in benefits (especially defined benefit pension schemes and post-retirement medical benefits).

- Political instability throughout the world will be a problem, driven by the liquidity crisis, price of oil, and/or terrorism.

Here are some risks I was worried about over a longer time horizon.

- Can an internal CRO be strong enough to stand up and be counted, or will fears for their job keep them “in line”. Every firm needs a Chief Skeptical Officer.
- US political environment – can they say no to anyone requesting a bailout?

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!