

APPENDIX E

Round 2: Comments on Application of Judgmental Methods

Item 1: The historical period used to calibrate stochastic models

Questions: Do you think that this Study provided potential developments and forecasts that could lead to revision of the historical period used in calibration? If yes, how would you revise the number of years you use to calibrate your models?

Respondent 2

- No

Respondent 3

- No

Respondent 5

- No

Respondent 7

- Yes

Respondent 9

- No

Respondent 10

- No

Respondent 13

- No

Respondent 16

- No

Respondent 17

- No

Respondent 22

- No

Answers

Respondent 1

- No

Respondent 7

- Believe there is likelihood of discontinuity between past and future, so that, while modeling needs some historical basis, impact of divined future changes must be considered in adjusting the model and the period used. Adjustment to number of years depends on what projected changes in the economy are under consideration. Adjustment might be more than just a change in period but include random shocks
- (Applies to all

Reasons

Respondent 1

- In my own statistical studies of the historical data, I found that if one eliminates the periods where government intervention was different from the norm, the interest rates, CPI and corporate bond behavior was stable and there were little to no outliers. My historical period is: 1935 to Oct 1979, Oct 1982 to current. Here, I removed all data prior to the formation of the SEC and all data during the period when Volcker was controlling Bank Reserves. This creates the "tamest" model. Any other economic behavior to be modeled should be calibrated separately and layered upon this.

Respondent 2

- For all variables it is important to determine if a structural shift in relationships has taken place. While Chow tests and other statistical techniques can be used to test for changes in relationships, judgment is still very important in selecting the relevant historical period for estimation of stochastic models to include all the of the historical period with the current model or relationships, but to exclude historical periods with different structural relationships

Respondent 13

- My model is deterministic. Not stochastic, so many of these questions do not apply

Respondent 17

- I'm pretty confident of my world view.

Item 2: Expected Value of Variables

Questions: Do you think that this Study provided potential developments and forecasts that could lead to changes in estimates of the expected value of the variables? If yes, by how much do you think the expected values might change? (e.g., if you would now use 6% instead of 5%, enter 100).

Respondent 3

- Yes

Respondent 5

- Yes

Respondent 7

- Yes

Respondent 9

- Yes

Respondent 10

- Yes

Respondent 13

- Yes

Respondent 16

- No

Respondent 17

- No

Respondent 22

- Yes

Answers

Respondent 1

- Yes, but the modeler should layer what his or her assumptions upon the ‘tame’ economic that I discussed above.

Respondent 3

- I have not been overly concerned about the role of baby boomers as they begin to retire in large numbers. Perhaps my thinking on the effect of this on investment returns and inflation needs to be refined. At present I am not changing the way I approach modeling but more thought is needed. As a rough guess, a 10% reduction in investment returns and a 10% hike in inflation might be needed.

Respondent 5

- I would now use a higher estimate of the lowest plausible values of CPI and 10 year interest rates. I would increase my estimate of this lower boundary by 50 to 100 basis points.

Respondent 7

- All

Respondent 9

- Lower S&P by 100 bps.

Respondent 13

- Studying data over a long period such as 114 years automatically leads to more volatility in all variables.

Reasons

Respondent 2

- Some of the events/developments discussed in this Study would change the expected values of the variables, but it is impossible to generalize on the magnitude of the change in expected values.

Respondent 5

-
- My original answers for the lowest plausible values were well below the range given by the other respondents.

Respondent 7

- Gives a more rational basis for company selection of projected values, particularly if modeling an additional optimization component

Respondent 9

- Made me think more about the interactions between the variables and how the correlations might be impacted

Respondent 13

- More volatility is a real world fact.

Item 3: Identification of potential developments that could affect forecasts

Questions: List one potential development or forecast identified in this Study that you think may cause changes in your model.

Respondent 9

- Food supply

Answers

Respondent 1

- The layered approach of modeling as discussed above should allow for any specific potential development to be place on the 'tame' model.

Respondent 2

- Global climate change having meaningful economic impact by 2024

Respondent 3

- None noted except for the need to change parameter calibration from the previous question.

Respondent 5

- Economic depression for a 7 year period.

Respondent 7

- All

Respondent 9

- Likely to raise cost of borrowing for the 10-T and spreads.

Respondent 13

- I have no plans to change my model.

Respondent 16

- Had not considered structural shift where corporate bond or Treasury issuance volume falls significantly

Reasons

Respondent 2

- This would be so far out of the historical experience that many statistical relationships between relevant economic series may be changed in a significant way.

Respondent 5

- This development is actually related to others in the list (increase in corporate defaults, prime rate above 9% for 5 years)

Respondent 7

- Gives a more rational basis for company selection of projected values, particularly if modeling an additional optimization component

Respondent 9

- Increased uncertainty leads to increased volatility

Respondent 16

- Impacts reinvestment assumptions made in long term models, not just in terms of reinvestment assets but performance of outstanding securities

Item 4: Mean reversion assumptions in stochastic models

Questions: Do you think that this Study identified potential developments or forecasts that could lead to increasing or decreasing strength of reversion?

Respondent 3

- No

Respondent 5

- No

Respondent 7

- No

Respondent 9

- No

Respondent 10

- No

Respondent 13

- No

Respondent 14

- Yes

Respondent 16

- Yes

Answers

Respondent 1

- Same as above

Reasons

Item 5: The period over which the current assumption reverts to the mean

Questions: Do you think that this Study identified potential developments or forecasts that could lead to a lengthening or shortening of the mean reversion period? If so, by how much?

Respondent 3

- No

Respondent 5

- No

Respondent 7

- No

Respondent 9

- No

Respondent 10

- No

Respondent 13

- No

Respondent 16

- No

Respondent 17

- No

Answers

Respondent 1

- Same as above

Reasons

Respondent 2

- If mean reversion does not take place over the 20 year span of this projection, then the process that is taking place is not a mean reverting one in any meaningful sense.

Respondent 13

- My model is deterministic not stochastic, so many of these questions do not apply.

Item 6: The volatility assumptions used in stochastic models

Questions: Do you think that this Study identified potential developments or forecasts that could lead to an increase or decrease in volatility assumptions?

Respondent 2

- Yes

Respondent 3

- Yes

Respondent 5

- Yes

Respondent 7

- Yes

Respondent 9

- Yes

Respondent 10

- No

Respondent 13

- Yes

Respondent 16

- Yes

Respondent 17

- Yes

Answers

Respondent 1

- Same as above

Respondent 3

- Some increase in volatility should be allowed for if one believes the impact of the baby-boomers will be significant. One needs to simulate a broader range of outcomes

Respondent 5

- Yes, seeing the strong consensus of views on highest plausible values could lead to increased volatility assumptions in forecasting models. Forecasters might wish to calibrate the volatility of their variables to produce similar extreme values.

Respondent 7

- All

Respondent 9

- The number of different situations that can impact variables leads me to favor higher volatility in the future than in the past.

Respondent 13

- Studying data over a long period such as 114 years automatically leads to more volatility in all variables.

Reasons

Respondent 2

- My starting point assumptions on volatility always are derived from historical experience. Economic theory gives us more insight on the mean or equilibrium value of variables than on the variance or volatility. The occurrence of very low subjective probability events could have an impact on volatility, but it is difficult for me to quantify the impact.

Respondent 5

- Forecasters might wish to calibrate the volatility of their variables to produce similar extreme values.
-

Respondent 7

- Future elements of instability should be used in establishing just how volatile each characteristic will be

Respondent 9

- 20 years from now an Asian power (likely China) that own lots of dollars and wants to destabilize the US economically before attacking will have an additional tool in its belt.

Respondent 13

- More volatility is a real world fact.

Item 7: Validity of outliers that stochastic models may forecast

Questions: Do you think that this Study identified potential developments or forecasts that could cause you to reassess the influence of outliers. If so, which outlier do you now consider having more of an influence in your model? What outlier do you now consider having less of an influence in your model?

Respondent 2

- No

Respondent 3

- No

Respondent 5

- Yes

Respondent 9

- Yes; greater combination of events

Respondent 10

- No

Respondent 13

- Yes

Respondent 16

- Yes

Answers

Respondent 1

- Compare to the same period of time, attempt to explain the outliers and adjust the layer that allows for these.

Respondent 5

- More influence – lowest plausible values of CPI and 10 year interest rates.
- Less influence – outliers on S&P 500.

Respondent 9

- We need to utilize deterministic models in addition to stochastic ones to get the impact of outliers.

Respondent 13

- Outliers should be checked against actual outliers in the period 1890 and on.
- Number 5 on page 10: The US assuming and accepted in a moral, political, and economic leadership role.

Respondent 17

- Treasuries

Reasons

Respondent 2

- Judgment is always critical in assessing the validity of outliers. Outliers can help us identify missing independent variables, structural changes, but they can sometimes just be random outliers.

Respondent 5

- My modeling focuses on interest rate variables. This is driven by the types of businesses I am modeling and the risks I am quantifying.
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Respondent 7

- Only historical studies give a known response to external stimuli, but the outliers there are obviously discrete and not easily incorporated in Modeling. Outliers based on model characteristics are a better fit, but without careful judgment, cannot be easily said to be “real”

Respondent 13

- To see if they seem reasonable.

Respondent 17

- Survey caused me to think more about the possibility that the government may not do anything about social security till the mess occurs.