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Global Uncertainties and their Implications for  
Accounting, Auditing, and Financial Reporting

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# Global Uncertainties and their Implications for Accounting, Auditing, and Financial Reporting

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# Preamble

- When I was asked to give a talk on this very broad and controversial topic for the PAC Conference – I was hesitant. Why me?
- After some thought, I decided that as a professor and observer of global issues for the last 50+ years – since my days as a student of economics and management science at the University of Chicago – I may have something useful to say about the myriad problems that we now face.

# Preamble

- I have two streams of comments:

First:

- What are the major global problems and what (if anything) do they have in common?
- What are the possible implications of these problems and their possible solutions for society?

Second:

- How might the economic uncertainties arising from these problems impact on financial reporting?
- How might these problems (and their possible resolution) affect us as accountants and auditors in the future?

# Preamble

- As befits an academic, the core of my comments is based on two papers:
  - “The Simple Analytics of Welfare Maximization”, by Francis Bator, *American Economic Review*, March 1957, pp. 22-57.
  - “A Bayesian Approach to Asset Valuation and Audit Size”, by William R. Scott, *Journal of Accounting Research*, Autumn 1973, pp. 304-330
- I will also reference a famous third paper:
  - “The Problem of Social Costs”, by Ronald Coase, *Journal of Law & Economics*, October 1960, pp. 1-44.

# The Main Problems

- Climate change – global warming and its many manifestations (heat waves, intense storms, ocean acidification, etc.)
- Wars – both economic and “hot” - between the NATO countries and Russia and China
- Disruptions to supply chains, and perhaps the end of globalization (“near” or “friend” shoring?)
- New diseases that nearly became pandemics in 2003 (SARS1) and did so in 2020 (SARS2) - with the resulting disruptions and social unrest

# The Main Problems

When I look at this list, I see three types of problems:

- **A fundamental economic problem** – global warming
- **Political problems with strong economic implications** – real wars and trade wars
- **A social problem with weaker economic implications** – global diseases and their mitigation

The common theme, of course, is *economics*.

# The Main Problems

## Comments:

- These problems are all very serious!
- We should not fool ourselves into thinking that they either don't exist or will somehow magically go away on their own.
- All three types of problems are potentially existential in nature.
- The problems and their (possible) solutions will have significant implications.



# The Problem of Externalities

- Global warming is an extreme case of a problem that has long been studied in economics – a negative externality – but whose resolution is difficult and politically controversial.
- Negative externalities occur when individuals and firms do not internalize all the costs from their economic decisions (transactions). They are basically interaction effects, where marginal costs are not calculated correctly.
- Global warming involves both negative production externalities and negative consumption externalities.

# The Problem of Externalities

- A key observation:

Externalities destroy the Pareto-efficiency (optimality)\* of the competitive market solution. That is, they vitiate the intellectual basis for the organization of our “free market” economy – unless they can somehow be “solved”.

\* Pareto-efficiency: No one can be made better off by reallocating resources except by making someone else worse off.

# The Problem of Externalities

- The importance of this observation cannot be overstated. It implies that:
  - There is nothing special or particularly desirable - in a social welfare sense - about free-market outcomes (i.e. the nature of good & services produced, their prices, etc.).
  - There is a logical basis and justification for various government actions (e.g. laws, regulations, prohibitions, etc.).
  - Alternative forms of government and governance *may* produce superior outcomes (of course they could also produce worse outcomes).

# The Problem of Externalities

- Two solutions have been proposed by economists:
  - Taxation by governments to discourage negative externalities (e.g. a carbon tax). This solution goes back to the writings of A.C. Pigou and is sometimes called a “Pigovian tax”.
  - Allowing the economic agents who produce externalities and those harmed by the externalities to negotiate an optimal level of externality production. This is Ronald Coase’s solution.
- Question: Which solution might work for global warming? Which do you prefer?

# The Problem of Externalities

- I don't believe that the global warming externality problem can be solved by simple taxation. This is too weak. As to Coase's proposed "solution" – it is obviously irrelevant.
- Indeed, I doubt that a serious solution to global warming is compatible with democracy – where people largely vote their self-interest.\* We may be pushed into alternative types of governance.

\*Note: As I write this on Nov. 2, CNN released a poll which showed the #1 issue for the majority of the American electorate was the economy – particularly the price of food, the price of gasoline, and inflation. Moreover, despite being one of the largest emitters of greenhouse gasses, the U.S. does not have a national carbon tax.

# Some Possible Implications

- I think we can expect to see more government intrusion into the economy and society, more laws and regulations, and more outright prohibitions of certain actions and choices. All three problem types – pure economic, political, and social - lead in this direction.
- The situation is analogous to the world of accounting, auditing, and financial reporting that existed prior to the passage of the U.S. Sarbanes-Oxley Act of 2002.
- Prior to 2002, we experienced the “wild, wild, west” of crazy financial reporting and compliant auditors (especially in the U.S.). Now we have the “wild, wild west” of global individualism, freedom, and out-of-control consumerism - not to mention too many I-phones and too much “social media”.

# Some Possible Implications

- The bottom line is that we are going through a period of great economic uncertainty about how the future will unfold, including future:
  - Laws and regulations
  - International investment and trade relationships
  - How the economy and its governance are organized
- Two questions:
  - What are the implications for financial reporting?
  - What are the implications for us as accountants and auditors?

# Uncertainty and Financial Reporting

- I'm going to use the paper by Bill Scott to examine the implications of uncertainty for financial reporting, since Scott explicitly incorporates uncertainty about financial statement (F/S) amounts into his analysis.
- Here is the essence of the paper:
  - Scott describes the financial statements as being an  $n \times 1$  vector of numbers where assets are positive numbers and liabilities are negative numbers. The change in this vector of numbers period-to-period also measures income, subject to adjustment for any capital transactions.



# Uncertainty and Financial Reporting

- Scott's paper (continued):
  - The most novel – and controversial - feature of the analysis is that Scott's auditor *determines and reports the values* of the client's assets and liabilities, and also *designs an optimal audit* of these assets and liabilities using Bayesian pre-posterior analysis. Thus the state space is the set of F/S numbers, and the auditor's beliefs are posterior probability distributions over those numbers.
  - As in the real world, Scott's auditor reports point estimates in the financial statements – but other possibilities like reporting the auditor's entire posterior distribution over F/S amounts are also discussed.

# Uncertainty and Financial Reporting

- Scott's paper (continued):
  - The auditor's loss function – in designing an audit and reporting - is a key feature of this (any) Bayesian analysis.
  - Scott assumes that auditors are motivated to minimize the expected losses of financial statement users caused by mis-stated F/S numbers (true values differ from reported values). This is a strong and controversial assumption.
- Scott's analysis is a normative, but I think reasonable, depiction of how F/S *should* be produced.

# Uncertainty and Financial Reporting

- The salient question (for us) is how does increasing prior uncertainty about F/S amounts affect the process?
- The answer lies in the assessment of the auditor's posterior beliefs about the F/S amounts. This would be an  $n$ -dimensional probability distribution (where  $n$  is the number of dollar amounts in the F/S). This distribution has a variance-covariance matrix.
- The posterior distribution depends on the auditor's prior beliefs about F/S amounts and the results of an (optimal) audit.

# Uncertainty and Financial reporting

- Some implications:
  - Increasing volatility (uncertainty) in the firm's (client's) environment changes the variance-covariance matrix and the variance of the auditor's posterior beliefs about F/S amounts can be expected to increase.
  - An increase in prior uncertainty over F/S amounts can be expected to motivate a more intensive audit.
  - An increase in posterior uncertainty over F/S amounts can be expected to result in more material misstatements in the F/S when point estimates are reported.

# Uncertainty and Financial Reporting

- Some key results:
  - In a more uncertain world, auditors should provide more information to shareholders, investors, creditors etc. about their entire n-dimensional posterior distribution over F/S amounts.
  - To the extent this is successful, auditors are less likely to be sued for F/S misstatements.
  - Auditors will need to perform more intensive and costly audits. Technological innovations in auditing may help control these costs.

# Uncertainty and Financial Reporting

## Note:

- In Scott's analysis, auditors are not responsible for differences between reported F/S amounts (point estimates) and actual future realized values. However, in the real world, they may be held responsible!
- The difference between reported point estimates and realized values can be expected to increase as the volatility of a firm's environment increases.
- Reporting more information about the posterior distribution would help to alleviate this problem.

# Some Implications for Accounting and Auditing

Finally:

- More and more onerous laws and regulations designed to ameliorate climate change, or shape industrial policy and trading relationships, implies a need for different types of information (e.g. ESG) about firm performance and compliance.
- This has obvious implications for financial reporting – both accounting and assurance.
- **Are we up to this task?**

Concluding Thought

Good Luck to Us All!