

**Remarks at
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Many of you are just starting, or are early in, your careers in public accounting, so this evening I'll try to put public accounting into perspective for you. To do this, I'll look backward into our history, then talk about the current state of accounting and assurance, and then peer into the future a little way to perceive the implications for you as you develop your careers.

Until 10,000 years ago, mankind subsisted as nomadic hunters and gatherers. Their existence was literally hand-to-mouth, and they accumulated no more wealth than they could carry on their backs. This mode of living required no formal record-keeping, and there was none.

But about 10,000 years ago, people in the middle east learned how to cultivate the land and domesticate animals, enormously increasing productivity. By generating a surplus of food, agriculture enabled crafts, commerce, and governance to advance.

This agricultural economy for the first time required recorded information. Grain had to be rationed until the next harvest, which required inventory records. Farmers sending their produce to market required a bill of lading to assure that all the goods reached market. Taxes had to be assessed and collected to support infrastructure, defense, and the administration of justice. These agricultural people developed symbols to record this accounting information. And these symbols grew into the earliest written language, which was developed specifically to keep accounting records. In fact, a large majority of the earliest surviving documents are accounting records.

The scribes, who were responsible for creating these records, were proto-accountants, going back to the very beginning of recorded history — by definition, since these proto-accountants, by inventing written language and producing voluminous records, initiated recorded history.

By late medieval times, the Italians had developed double-entry bookkeeping, codified by Luca Pacioli in 1494. In double-entry bookkeep-

ing, the debits represent the benefits and the credits represent the sacrifices — that is, the mutual consideration in business contracts. The use of the double-entry technique permitted an enterprise to keep track of a large number of contracts in various stages of execution. A large bundle of contracts is nothing more or less than a corporation, and a corporation is the business form necessary to aggregate the capital to build the factories necessary for industrialization.

Although double-entry bookkeeping did not cause the industrial revolution, the industrial age could not have occurred without this accounting technique. Thus our predecessor accountants also facilitated the transition from the agricultural to the industrial economic paradigm.

The industrial revolution made manufacturing the key enabler of economic progress. Machines increased output, and the division of labor added efficiencies. Industry did not supersede agriculture, because people still needed to eat, but the mechanization of agriculture freed most people from working on farms, permitting them to enter the factories.

In just the last few decades, we have entered the era of still another economic paradigm: the information economy. Knowledge work is the key source of growth in the most developed countries and the greatest influence on other economic elements.

Computers and telecommunications raise the productivity and potential of knowledge work. They're at the center of the new paradigm. They condense time and space by degrees once unimaginable.

The information economy is just in its infancy, but it now takes its place alongside the hunter-gatherer, agricultural, and industrial paradigms.

As before, the information economy did not supersede agriculture and industry, because people continued to need to eat and to demand the products of industry. But the information econ-

omy so improved the efficiency of these older sectors that today only two percent of the American workforce is required to grow things on farms, and only ten percent is required to make things in factories. More than two-thirds of all American workers are employed in the information sector.

Now we are well along in the transition to the information economy. Although accounting information has also facilitated this economic transition, it has done so with less success. The reason is that our accounting model still concentrates its energies on the tangible assets of the industrial era: assets like inventories, plant, and equipment — in other words, factories and their products.

But the assets of the information economy tend to be intangible assets like information, research and development, capacity for innovation, and relationships with suppliers, customers, and employees. Accounting has begun to develop techniques to account for these assets, and its attempts to do so will be fully realized during your professional careers.

Appropriate accounting for the information era will need to be on-line and real-time. It will need to comprehend a larger variety of transactions, events, and processes. It will need to be both reliable and credible, meaning it will require real-time assurance as to its quality. This business information infrastructure will rely on two crucial enabling technologies: one is XBRL — eXtensible Business Reporting Language — which will substantially reduce the impedance of business information flows to investors, improving the allocational efficiency of the financial markets, and thus the efficiency of the information economy. The other enabling technology is continuous assurance, which will improve both the reliability and credibility of business information.

(I note, parenthetically, that Rutgers faculty members are widely recognized as being in the vanguard of developing both of these enabling technologies. Although it's risky to name individuals, for fear of omitting others equally deserving, I nevertheless want to mention Professor Miklos Vasarhelyi for his sustained intellectual, innovative contributions to accounting and assurance theory and practice.)

Let me turn to a metaphor for accounting: that of a nervous system.

I ask each of you to summon up a mental image: that of a human being with no nervous system.

You're probably envisaging an inert blob of protoplasm, entirely powerless to perceive its environment or to act with purpose. It's the nervous

system that converts that protoplasm to an effective human being.

Well, an accounting system is the nervous system of the enterprise that permits it to perceive and act. Transaction accounting is the sensory part of the nervous system, and budgeting is the motor part of the system, issuing the instructions. The interaction of these systems generates an organization's perception of the world and determines its behavior. This nervous system converts an inert bundle of resources into a working enterprise.

And we professional accountants have been the people who designed and operated these enterprise nervous systems: systems that at the micro level have permitted the achievement of enterprise objectives and at the macro level have permitted the mercantile, industrial, and information revolutions.

At this point, I should give you my definition of accounting: accounting is the information infrastructure that permits resources to flow to their highest and best uses.

Within enterprises, good information permits management to select the best opportunities to deploy the enterprise's capital and empowers employees to make the best day-to-day decisions. The result is an efficient and effective company.

Across enterprises, good information permits investors and creditors to direct capital to the most efficient and effective companies.

Any enterprise or economy that can consistently redeploy capital to the highest and best uses will be successful. Although there are many reasons for the economic success of America, one of the most important is that it has highly efficient capital markets to allocate and reallocate capital rather than keep it trapped in sub-optimal industries and enterprises.

Obviously, many major decisions — by managers, employees, customers, suppliers, investors, creditors, the community, and government — are based on the information provided by professional accountants, and the influence of our work is enormous. To provide irrelevant or unreliable information is to cause bad decisions, and therefore bad outcomes.

The necessity to avoid adverse consequences provides us with moral imperatives: we must do nothing that obstructs us from our obligation to provide high quality information — that is, information that is relevant, reliable, and timely.

This moral component of accountancy has always been recognized and is reflected in the high ethical standards to which we hold ourselves and which we have codified in our strict code of ethics. Accountants do not act ethically because

we have a strict code of ethics. Rather, we have a strict code of ethics because we know that we must act ethically.

But as well as our profession has performed, there are mounting signs of fundamental problems. Let me mention two: the worsening debt woes of many governments and the recent meltdown in the financial services industry.

In the last few months, the financial markets have been in turmoil because of fears that Greece might default on its debt. Actually, Greece's total debt is too small to affect the markets all that much. Rather, the concerns embrace Italy, Ireland, Portugal, and Spain as well.

And, of course, the rating agencies have warned that the U.S. Government is in danger of losing its AAA rating. U.S. Government bonds used to be considered the safest investments in the world — literally risk-free. Yet recently, Berkshire Hathaway issued bonds at a lower interest rate than comparable U.S. Government bonds. As Bloomberg put it: "The bond market is saying that it's safer to lend to Warren Buffet than Barack Obama."

Why is the U.S. Government now perceived as risky? For the same reason all these other countries are seen as likely to default: the total debts are so large relative to GDP that there is no reasonable probability they can be paid off.

Take the U.S.: our total governmental liabilities are nearly nine times our GDP. You heard that right: nine times. Our GDP is currently about \$14.5 trillion, and our obligations are nearly \$130 trillion dollars. That includes not only the official Federal debt, but also \$6.5 trillion in state debt and over \$100 trillion for social security and Medicare.

What does this have to do with accounting? Well, these obligations arise because politicians make promises for future benefits without consideration of how they will ever be paid off. They take credit for the benefits they legislate but defer the funding of these benefits until long past the time they're in office. This is, at its core, an accounting issue: the matching of costs and benefits — the recognition of costs when they are incurred.

One ruse the politicians use to paper over these shenanigans is to rely on projections of the Congressional Budget Office. This office uses static models to project revenues and expenses as if there were no incentive effects of the laws Congress passes. For example, the CBO will apply proposed higher tax rates to future taxable income and project greater tax revenues, when history shows that the opposite is true.

When Kennedy and Reagan lowered tax rates, tax revenues increased because more economic activity was stimulated. When tax rates are increased, they stifle economic activity and result in lower collections. Yet the CBO continues to produce fictitious projections that let Congress avoid facing up to the fiscal implications of their legislation. Cumulatively, that results in the accretion of promises that our government can't keep.

We accountants should be organizing the outrage about this national — and global — disgrace.

Now let's turn to the financial meltdown of 2008. Its root cause was bipartisan Federal government housing policy intended to boost the percentage of Americans who owned their own homes. Banks and mortgage giants like Fannie Mae and Freddie Mac were ordered to lower lending standards in order to make ownership possible for more people.

So people with low creditworthiness were able to get mortgages to buy homes they couldn't really afford. And even creditworthy people were encouraged to cash the equity out of their homes through home equity loans.

All of this was predicated on the wide-spread assumption that housing prices would never decline.

However, the availability of so much financing led to overbuilding and rampant real estate speculation, with the result that housing prices did decline, leaving many homeowners with negative equity.

Under traditional banking standards, bankers would lend money to homeowners and then hold the loans to maturity. Thus they had incentives to lend prudently. However, with Fannie Mae and Freddie Mac buying or guaranteeing a huge percentage of all home mortgages, banks made money mainly by originating loans, not holding them to maturity. Thus their incentives shifted away from prudence and toward making as many loans as possible.

Moreover, many of these mortgages were then bundled, sliced, diced, and sold as CDOs — collateralized debt obligations — in tranches of varying risk. Synthetic CDOs were even created to mimic CDOs. Finally, these various instruments were insured through credit default swaps, so they were largely rated AAA by the rating agencies, using grossly outdated default histories in their rating models; that is, their models were parameterized on default rates that antedated the fall in credit standards.

When housing prices fell, many homeowners defaulted on their under-water mortgages rather than throw good money after bad, and the prices

of CDOs rapidly plummeted, leaving the investors, mainly financial institutions, short of capital. This led to failures of major commercial and investment banks and emergency rescues of others.

The result was a panic culminating in a seizure of the credit markets and spillover into the stock market, which also plummeted.

Banks wouldn't even lend to each other because they had no idea (1) which would be next to fail, (2) what the Federal government would do (having inconsistently bailed out Bear Stearns, but let Lehman go bankrupt) or (3) what counterparty risks their borrowers might have. Not only didn't they trust other banks' balance sheets, they didn't even trust their own. In any case, the latest audited balance sheets were woefully out-of-date by the time the crisis was upon the banks.

There are many directions to point fingers in this fiasco: at the politicians who distorted the housing market; at the banks, who leveraged-up to unconscionable levels and bought sub-prime-mortgage CDOs with abandon; at the homeowners who bought houses they couldn't afford; at the rating agencies that used faulty mathematical models; at the CDO insurers, who grossly underpriced the risks; and at the regulators, who were sound asleep. But I would also point a finger at the accounting standard-setters: they failed to establish adequate standards for reporting on these complex financial instruments.

Although better accounting would not have prevented this crisis — after all, the root cause was political meddling in the housing markets — nevertheless, much greater transparency and frequency of reporting could have ameliorated the crisis and kept credit markets on a more even keel while the real estate and mortgage markets sought equilibrium.

What is especially frustrating is that the accounting profession has been promoting the idea of a broader bandwidth of information, more frequent reporting, and a user, rather than preparer, focus for many years. The AICPA's Jenkins Committee made detailed recommendations along exactly these lines in 1994.

And XBRL is a maturing technology to enable this scope and frequency of reporting.

Yet corporate hostility, regulatory indifference, and Congressional bungling have left accounting in substantially the same state it has been since the 1930s: one-size-fits-all, annual, historical, cost-basis, financial statements.

As independent public accountants, the value

of our audit service is limited by the value of the accounting statements we audit. A perfect audit of incomplete and out-of-date information does not correct these underlying defects.

But there's no reason that we can't extend our assurance services into information domains of greater relevance to information users. The AICPA had an Assurance Services Special Committee, which I chaired, that recommended just that. It defined assurance services as independent professional services that improve the quality of information, or its context, for decisionmakers. That definition subsumes traditional financial-statement auditing, but opens many economic opportunities for CPAs to apply their skills for the benefit of new classes of information consumers. Examples include continuous assurance, enterprise risk assessment, business performance measurement, information systems reliability, electronic commerce, and health care performance measurement, to name just a few.

Given the technological tools available to us and the many unmet user demands for accountability and assurance, I predict that you will be witnessing — and, I hope, even initiating — many changes in the practice of public accountancy over your careers.

Specifically, I urge you to —

- Participate in, not just observe, the transformation of accounting and assurance;
- Study and understand the great potential of information technology to transform enterprises, accounting, and our very economy;
- Harness new technologies to your own responsibilities — not merely to speed up processes or cut costs, but to devise new and better ways of doing things;
- Use technology to deploy more and better information throughout your own enterprises; and
- Encourage policy setters to accelerate rather than retard development of the new business-reporting paradigm.

Finally, I advise you to be ever-mindful of the enormous implications — both economic and moral — of your work in public accounting and to act with honor and integrity at all times. You will find that, although this policy exacts costs in the short run, it always pays off in the long run.

I wish you great success in your careers in the honorable and ancient, yet contemporary and dynamic, profession of public accounting.