Remarks by David Mosso, Chairman
Federal Accounting Standards Advisory Board
To the American Accounting Association, Government & Nonprofit Section,
At Kennedy School of Government, Harvard University
April 1-2, 2005

Slide 1 – Introductory Remarks

I will talk this evening about how accrual accounting might be applied to the social security program. Accrual accounting is not now used for social security so my remarks will be on a “what if” basis.

I start with the standard FASAB disclaimer, which is that the views expressed are strictly my own and not those of the Board.

The disclaimer is particularly important this evening because the Board has on its current agenda this very issue, that is, whether to accrue a current cost for future social security benefits and to report those costs and any resulting liability in the government’s accrual-based financial statements.

Disclaimers aside, I will outline my views not only on how accrual accounting might be applied but also on how accrual numbers might change perceptions on social security issues, including the on-going debate about personal accounts

Slide 2 - Conclusions

The principal conclusions for which I will attempt to provide evidence are as follows.

--One, accrual accounting is not a substitute for cash accounting and cash flow forecasting. It is complementary. It provides additional information from a different and more comprehensive perspective.

--Two, cash basis accounting, as in the unified budget and its projections into the future, disguises an inherent upside bias in social security cash flows for any fixed time period. That bias along with a pay-as-you-go funding policy obscures the long-run health of the social security program and leads to periodic solvency crises.

--Three, accrual accounting would compensate for the cash flow bias and simultaneously provide information for better targeting and tracking the financial health of the social security program.
--Four, in measuring a transition to personal accounts, accrual accounting would show no transition cost and no increase in federal liabilities. That contrasts with the unified budget, which would show a significant transition cost and a commensurate increase in federal liabilities.


So let’s turn to how accrual accounting might work for the social security program. To begin with, it should be noted that accrual accounting itself is based on cash flows. Accrual accounting starts with raw cash flows and varies the timing of their recognition in the accounts to coincide with the events that cause the cash flows.

With that in mind, this slide, adapted from the consolidated federal financial statement for 2004, shows the actual and projected cash flows from 1970 through 2078. Those cash flows are the raw materials for all forms of social security accounting and forecasting.

The widening gap that you see in the out years represents the financial deficit that is the center of the current political debate about whether the program is in financial crisis.

The accelerating upsweep of the receipt and payment lines is a little misleading because the chart is in nominal dollars. If the numbers were in constant dollars, adjusted for inflation, or if percentage changes in nominal dollars were charted, the lines would be flatter but they would still show the same relative deficit.

The cash flow forecasts that I will discuss from here on use a third method to tame the out year nominal dollars, namely, discounted cash flow. Discounting brings the out year numbers back to the present value equivalent of current year dollars.

Slide 4 – Three Measures of Social Security Obligation

The table on this slide displays three measures of the social security deficit or surplus. There are many other numbers floating around in political debate circles, but these three are probably the most common and they suffice for the points I want to make.

The first line of the table shows the unified budget results, the cumulative difference between tax receipts and benefit payments from 1937 to the end of 2003. The net amount of $1.5 trillion surplus at the end of 2003 is the cumulative effect of social security on the unified budget. It is also the balance of assets in the social security trust fund.

In view of the projected future deficits shown by the chart in the preceding slide (Slide 3) and on lines two and three of this table, you could reasonably conclude that the healthy looking $1.5 trillion unified budget surplus is not a very good indicator of longer term
financial health. But it and undiscounted projections of it are the numbers most often cited in the media and in political discourse for showing the effect of social security on the federal deficit and federal debt. The unified budget is therefore a major shaper of public perceptions.

The second line of this table is an exceptionally important measure. It is a 75 year open group projection of cash flows. It is the measure that for years has guided the Trustees of the Social Security Trust Fund, and the Congress, in determining whether the program was financially sound.

Historically, if the 75 year number were positive, the program was said to be “in balance.” If it were substantially negative, the Congress would alter the tax-to-benefit formula in some way to bring the 75 year measure back in balance.

In recent years, the adequacy of the 75 year measure as a policy guide has been questioned fairly intensely for reasons that I will explore shortly. In response to the criticism, the 2004 Trustees’ Report presented a couple of other measures, one of which is shown on the third line of this table labeled “closed group.” The other is an “infinite horizon” measure that I will discuss later.

The closed group number is of particular significance for my exploration of the application of accrual accounting to social security. It is essentially an accrual accounting measure.

The open group and closed group measures on lines two and three of the table differ conceptually in one key respect. Conceptually, the closed group projection runs until the estimated time of death of the last member of the group, thus picking up all tax receipts from and benefit payments to that group. The open group includes those closed group estimates plus receipts and payments from new entrants to the workforce all the way out to the end of the 75 year projection period.

Let’s move on to explore these measures further.

Slide 5 – Cash Basis: Single Individual

This slide illustrates the inherent upside bias in social security cash flows. It shows the cash flow pattern for one hypothetical individual who enters the workforce at age 15, retires at age 65, and dies at age 85.

The green line representing social security taxes received from this individual has a positive effect on the unified budget for 50 years. The tax receipts end abruptly at age 65 and the red line depicts the negative effect on the unified budget for the next 20 years.
That upside bias phenomenon is obscured by the large numbers of participants, but this same basic pattern, first receipts then payments, is applicable to every participant in the social security program regardless of the age at which they enter the workforce. Thus for any period of time past, there is a huge upside bias in the unified budget numbers in the sense that the budget reflects all of the receipts that have been triggered by past work but not all of the benefit payments.

The same upside bias exists for the 75 year open group projection and for any other fixed period open group projection.

Slide 6 – Open Group: In Balance Hypothetically at 75 years

This slide shows how the cash flow bias plays out in a 75 year open group projection. The chart does not represent any actual forecast. I simply posited that, to eliminate a projected deficit, the Congress has ratcheted up the tax-to-benefit formula so that the program is in exact balance 75 years from the forecast date.

What about year 76 and beyond? If the projected trends continue as in the dotted lines, the deficit reappears and begins to grow again. Because of the cash flow bias in an open group projection, often assisted by demographic changes, the receipt and payment lines tend first to converge on a zero balance crossover point and thereafter diverge indefinitely. That is, if a forecast made in year 0 has out year 75 in zero balance at the crossover point, as in the chart, then in each subsequent year the crossover point will be one year closer. In pictorial terms, the vertical axis at year zero of the chart moves forward one year at a time while the vertical dotted line marking the crossover point at year 75 is fixed in place. When the vertical axis moves to, say, year 10, the crossover point is still at year 75.

As the vertical axis gets closer to the crossover point and as the dotted lines simultaneously diverge into larger projected deficits, concern about a looming financial crisis starts to grow. At some point the tax-to-benefit formula has to be adjusted to avoid impending insolvency. Although not with the precision depicted in this chart, this phenomenon has actually happened from time to time over the years. It is happening now. It is why using the 75 year open group projection as a policy guide has been challenged.

Some might argue that the cash flow bias in the 75 year projection is consistent with the longstanding pay-as-you-go financing policy for social security. Pay-as-you-go requires only that there be enough assets in the trust fund to pay benefits when due and on the surface an open group projection seems relevant to that.

However, prudent management would suggest that the pay-as-you-go policy be applied in a way that is equitable to past and future participants and does not lead to periodic financing emergencies. The 75 year projection is being challenged, I believe, because
of doubt that it is well suited for managing a pay-as-you-go policy including those broader purposes of equity and stability.

There are two ways to eliminate the cash flow bias from reported measurements.

One way is to limit the forecast to a closed group at a point in time and let the forecast period for that group run to the ends of the tax and benefit flows respectively. That way the trailing benefit outflows finally catch up with the head-start tax inflows. That is the accrual accounting way.

The other way is to extend the 75 year open group period into one of the synonymous periods called perpetuity, infinity, or eternity. The Trustees’ Report calls it “the infinite horizon.” I will describe that approach first and then return to the closed group approach.

The number reported in the 2004 Trustees’ Report for the open group extension to the infinite horizon is $10.4 trillion. That compares to $3.7 trillion derived from the 75 year open group projection. The difference between those two numbers is $6.7 trillion.

Thus the extended infinite horizon deficit, with bias removed, is nearly twice the size of the 75 year open group deficit. Either as a pay-as-you-go guide or as a financial health indicator, the 75 year open group projection leaves out more relevant information than it puts in. That $6.7 trillion is a big chunk of the pay when you go beyond 75 years.

How does the infinite projection work? I am about to wade in over my head here because eternity is not an accounting concept. I do not know the mathematics of the infinite projection, but I guess that the forecasters project those dotted receipt and payment lines out to where the next increment of each line discounts back to near-zero. Since the payment line is accelerating upward faster than the receipt line, it takes the payment line longer to reach near-zero. Hence the infinite deficit grows until the computer stops.

As I think about such a projection process, it strikes me that it shares a key feature of a closed group projection. As I explained, a closed group projection gets rid of the cash flow bias by pulling in all the trailing benefit payments. The projection period for payments is longer than for receipts. That is what happens with the infinite horizon as I described it. The payment line goes farther into infinity than the receipt line. So it seems to me that the net effect of projecting to the infinite horizon is simply to pick up those trailing benefit payments and thereby simulate a closed group, in eternity.

Why would you want to simulate a closed group in eternity when you have a closed group measure here and now, already noted in the Trustees’ Report?
While you ponder that question, I will turn to examining accrual accounting concepts and putting closed group measures into an accrual accounting context. Then I will offer an opinion on the infinite horizon projection.

Slide 7 – Accrual Basis: Single Individual

I now turn to a modified version of the earlier chart of a work life cycle for an individual social security participant. It shows how accrual accounting could be applied to this particular pattern of cash flows.

The foundation principle of accrual accounting is to measure the economic effects of an event when the event occurs. An event may have multiple economic effects. Those effects may happen at the time of the event or in the future, but they are all measured and reported by accrual accounting at the time the causal event happens. For example, a commercial sale would call for same period recording of the sale, the cost of sale, allowance for returns, warranty obligation, sales tax remittance obligation, sale-based charitable pledge, and other direct and indirect economic consequences.

For this hypothetical individual, the causal event is work performed in covered employment. Work in covered employment causes two cash flows between the individual and the government: One is the payroll tax which flows immediately by way of payroll deduction and remission to the Internal Revenue Service. The other is the benefit payment which flows many years later after the individual’s retirement.

Accrual accounting reports those two cash flow consequences in the period that work is performed by discounting the distant future benefit payments and reporting them together with the immediate tax withholdings.

This chart shows how accrual accounting would differ from unified budget accounting. The green line representing tax receipts is the same as in the earlier unified budget version of this chart (Slide 5) because the receipts flow immediately. Thus, cash accounting and accrual accounting are the same for tax receipts.

The dotted line in this chart is the footprint of the solid red benefit payment line in the unified budget chart. Accrual accounting allocates those estimated future benefit payments to the time periods when work is performed. The old red line has been torqued into the solid red line here labeled “accrued benefit cost.”

In this hypothetical depiction, an accrual deficit accumulates over the work life of the individual. For any given individual it could be either a surplus or deficit. In the aggregate, however, there has been, had it been calculated, an accumulating deficit leading up to the amounts taken from the 2004 Trustees’ report somewhat as shown on the next slide.
The Trustees' Report shows a measure for a closed group of present social security participants. The measure is not described or applied as an accrual accounting measure, a point to return to, but the closed group measurement methodology is routinely used in accrual accounting to measure the value of assets and liabilities with long time lapses between a causal event and its subsequent cash flow consequences. Thus the Trustees’ closed group measure is compatible with the accrual accounting model.

This slide shows in a stylized way how accrual accounting might have displayed the financial health of the social security program from its inception in 1937. The data for 2003 are from the Trustees' Report of 2004. Earlier closed group data are mostly not available in published form so this chart is just straight lined from an arbitrary starting point in 1937. Cash flows are also straight lined because variations are not important for the purpose of the chart.

Some points worth noting about this chart.

--The accrued benefit cost line starts above the base line because some early participants were grandfathered into the program and credited with benefits for work or conditions existing before the program’s inception. An accrued liability arose immediately without qualifying work being performed. Accountants would call it a prior service obligation. That initial prior service obligation was relatively small, but it has been augmented over the years by grandfathering others into the program, by sweetening the benefit formula for those already on the roll, and by interest accrual on the unfunded liability.

--The accrued liability is a measure of the subsidy provided to past and current participants primarily, I assume, because of the prior service phenomenon. It is an important factor in generational equity considerations.

--The closed group unfunded liability in this chart is $11.2 trillion. That compares to $10.4 trillion for the infinite horizon deficit, to $3.7 trillion for the 75 year open group deficit, and to a $1.5 trillion surplus in the unified budget. For the really curious, there is a table at the end of this paper that shows how the unfunded obligation figures can be built up one layer at a time. A technical note to that table explains another measure called “maximum transition cost.”

--Although the closed group measure is presented in the Trustees’ Report, it is presented along with the infinite horizon projection as “additional measures.” It is not part of the principal program analysis in the main body of the report. And as noted before, it is not presented or described as a product of accrual accounting.

That latter point is important for the accrual accounting story. The accrual accounting model is concerned equally with measuring costs and revenues for a period and
measuring asset and liability positions at the beginning and end of the period. Part of the accrual accounting process is to analyze and classify the reasons for change from one period to another and to link rigorously the period flows with period-to-period ending positions. Measures such as the closed group number that are produced independently of a disciplined accrual accounting and reporting system do not have the reliability, transparency or analytic perspective that an accounting system provides.

If the measures represented in this chart had been reported in accrual based financial reports in addition to the information in the Trustees’ Report, policy makers and the citizenry over the years could have more readily seen a trend of deteriorating financial health of the social security program. Accountability would have been established in a way that permitted more informed scrutiny from within the government and from without.

The financial health of an entity entails a complex assessment. The assessment requires information from many sources, but the core of the process is a set of financial statements: comparative balance sheets showing all assets and liabilities along with statements of revenue and expense and cash flows. Lots of other information is needed but it all works off that core.

I said earlier that I would offer an opinion on the infinite horizon projection after further exploring the application of accrual accounting to the social security program. My opinion is that if the 75 year open group projection is to continue to be the primary policy focus, the infinite horizon projection is useful because it shows how deep the insolvency runs out there. It shows that the $3.7 trillion 75 year deficit is the tip of an iceberg.

More fundamentally, however, I believe that the 75 year projection, by itself or coupled with an infinite projection, is an imperfect policy guide. Long range financial projections need to be anchored to present economic reality. Otherwise they foster a “someone should do something sometime” attitude. Accrual accounting is designed to measure present economic reality.

If the infinite horizon calculation is simply a simulated closed group measure, as I suspect, it is not a coincidence that the $10.4 trillion infinite horizon number is fairly close to the $11.2 trillion minimum closed group number. So I repeat my question, why simulate a closed group number in eternity when you have one right here in the present? The deficit exists now, not in eternity. I believe that in an accrual accounting context the infinite horizon projection would be superfluous.

Long run cash flow deficits show up in the future but they typically originate in the past and build out into the future. Any existing liability is a call on future cash, a forecast of future cash flow deficits if counterbalancing sources of cash inflows are not readily apparent. Accrual accounting puts such a liability in front of management and policy makers at every reporting date. It emphasizes the present as a bridge between experience of the past and plans for the future. In the federal government, the President’s Management Agenda is already into quarterly financial reports and is
headed for monthly. That gives many opportunities to consider policy changes based on recent trends and events.

Although social security receipts have always exceeded benefit payments in the past, the existence of an accrued liability is a warning that future benefits will exceed receipts. If the liability is kept under control, it could be sustained indefinitely. If the liability is trending inordinately upward, the future cash flow burden could become a drain not only on the federal unified budget, but also on the national economy. To wit, the recent credit warning by Standard & Poor’s that several national debt ratings are headed for downgrading to “speculative” or “junk” if current fiscal trends continue. The United States downgrading might come before 2030 according to the S&P projection.

In an accrual accounting context, the closed group liability would be the heart of an assessment of financial health, including liquidity, sustainability, and generational equity. Projections would be essential components of an assessment model. An open group cash flow projection would be useful as an out year solvency test, one component of financial health. Projections of accrued costs and the accrued liability would be more useful for policymakers, I would think, and more understandable to most of us, than the infinite horizon projection. A pay-as-you-go policy target aimed at maintaining a sustainable level of accrued liability might be better than the 75 year open group projection aimed at a point of insolvency.

Slide 9 – Personal Accounts: Transition Cost

Now I will explore briefly how accrual accounting might inform the ongoing debate about restructuring the social security program to include personal accounts. This and the next slide are based on simple made up numbers designed to illustrate accrual concepts.

There are two scenarios: Scenario one assumes no change in the social security program. Scenario two posits establishment of personal accounts for younger workers with an equivalent reduction of conventional benefits.

To focus on essentials, I set payroll tax receipts equal to benefit payments and assume that there are no assets in the trust fund. That leaves the change in federal liabilities and the change in the federal deficit as the only variables in the charts. Liability change is above the line on the chart, deficit change is below the line.

The first bar shows a net accrual of conventional social security benefits in the amount of $10 (supply your own zeros). That increases federal liabilities and a corresponding increase in the accrual deficit. At the bottom of the chart, the unified budget is silent. Nothing happens there.

The second bar shows the effects of establishing personal accounts in the amount of $3 funded entirely by public debt liabilities. Young workers who elect to have personal
accounts give up an equivalent amount of conventional benefits, so the accrual for conventional benefits is $10-$3 or $7.

Although the accrued liability increases by only $7 in the second scenario as compared to $10 in the first, an additional $3 increase in public debt liabilities is needed to raise cash for transfer to personal accounts. So we end up with the same $10 increase in federal liabilities as in scenario one except that the composition of the increase is $7 accrued liability and $3 public debt liability.

This is much as if you personally took out a home equity loan and paid off some credit card debt. You owe just as much as before but you made your credit card issuers happy and got the bill collectors off your back.

At the bottom of the chart, the unified budget wakes up in the second bar. Liabilities and deficit increase by only $3 as compared to $10 in the accrual accounts. But the comparison to zero for the unified budget in the first bar, gives critics of personal accounts a basis for claiming that the wheels are coming off the fiscal machine.

That unified budget set of numbers dominates the on-going debate about personal accounts. The debate ignores the fact that the accrual liability already exists. It ignores it because the accrual liability is not now reported either in the unified budget or in the federal accrual-based financial statements.

I repeat, the unified budget is a major shaper of perceptions.

Slide 10 – Beneficiary Assets

This slide looks at the two scenarios from the standpoint of social security beneficiaries.

In scenario one, beneficiaries' have $10 in conventional defined benefit assets.

In scenario two, young workers would initially have $7 worth of conventional defined benefit assets and $3 worth of defined contribution personal account assets. The case for personal accounts is that $3 in personal accounts would probably grow faster than the value of the $3 in conventional defined benefit assets given up. If so, workers with an initial combination of conventional benefit assets of $7 and personal accounts of $3 would be better off in the long run than workers with only conventional benefit assets of $10.

There is an accrual accounting quirk here, however. Accrual accounting would make the two kinds of asset look the same if their fair values were the same, say $3. But qualitatively they are not the same by any stretch. The conventional benefit asset converts to a life annuity upon retirement and pays off for as long or short as the beneficiary lives. The personal account assets can rise of fall in value in changing
market conditions and they last only as long as the beneficiary resists spending them. You pays your money and takes your choice.

Slide 11 – Why Accrual Accounting

It is time to wrap this up by delineating some of the benefits that accrual accounting could bring to information about the financial health of the social security program.

Complementary measurements: First, it must be said that accrual accounting is not a substitute for the kinds of cash flow measures that have traditionally been used for managing the social security program. Accrual accounting would add accrued benefit cost and liability measures to social security financial reporting, but it could do that simply by incorporating an existing closed group cost measure into the accrual framework. No new calculations would be needed. Longer range forecasts could stay as they are, as extensions of the shorter range forecasts incorporated in the accrual model.

Prediction and feedback: A strength of accrual accounting is that it tells an entity in a comprehensive way where it stands financially at the end of each period. Knowing where you are is always a good starting point for predicting where you are headed and for planning course corrections if you want to go somewhere else. A series of point-in-time accrual measurements along with measurements of activities between points provides a track record that is a source of insights useful for forecasting and planning.

An anchor to the here and now: Accrual accounting would anchor the forecasts needed to measure accrued costs and liabilities to real people with real work histories. Those people exist right now in a known economic environment. That is a firm base for trend analysis and for forecasting. As you move beyond that firm base, bringing in unknown future participants as far as infinity, every variable in the forecasting model becomes more uncertain and the results less reliable. Trends of open group forecasts are too slippery to analyze with confidence.

Disciplined GAAP framework: Accrual accounting represents a system of accounting, broadly described as “generally accepted accounting principles,” that has been developed in an evolutionary way over centuries of practice. It evolves slowly and is always behind the curve. But it brings an independently testable discipline to the measurement process that is probably unequalled outside the physical sciences. Beyond that it juxtaposes all of an entity’s existing assets and liabilities on a balance sheet where they can be assessed in relation to one another and to aggregates and to changes over time. It is designed for reporting on accountability to stakeholders and decision making by stakeholders.

Generational equity: Every liability represents a transfer of an economic burden to the future, called a generational transfer in government circles. The people who pay the piper are not always the ones who call the tune. That is especially true in the long
timeframes of the social security program in which the liability is incurred two or three generations before it is paid off. Generational equity is a difficult concept to pin down. Certainly every generational transfer is not unfair. Current and past generations have all paid taxes, but unfunded prior service obligations roll forward and grow with interest accrual. The generational equity issue has to be sorted out in the political process. Accruing and reporting the social security liability regularly would seem to be a positive contribution to that process.

**Sustainability:** Finally, sustainability is an important consideration for any government program but especially for one like the social security program where the time is so long between the promise of payment and the actual payment. That is why, it seems to me, that year by year accrued costs and liabilities are so important to know about. If the liability is rising rapidly, that is a flashing warning light. How rapid is too rapid can then be evaluated in relation to all other federal financial considerations and in relation to external variables such as gross domestic product and demographic trends.

Well, that is the end of my story. I gave you my conclusions first and I won’t repeat them here. I will philosophize a bit though.

**Slide 12 – The End**

Accrual accounting was first articulated over a half millennium ago by Luca Pacioli, in 1492. The accrual model has been honed, expanded, and improved ever since. Accrual accounting has long been known as the language of business. Gradually, and often grudgingly, accrual accounting has come to be known as a more universal language, the language of economic accountability, performance measurement, and decision making for all types of organization, business, government, and not-for-profit.

Why do some institutions resist applying accrual accounting to their operations? I do not know for sure, but I will leave you with a hint by way of a quotation from an old philosopher named Josh Billings (Henry Wheeler Shaw):

“As scarce as truth is, the supply has always been in excess of the demand.”
Accrual Accounting and Social Security

Presented by: David Mosso
Chairman, Federal Accounting Standards Advisory Board (FASAB)
Disclaimer

Views expressed are those of the speaker. The Board expresses its views in official publications.
Introductory Remarks

- Introduction
- Disclaimers
- Conclusions
Conclusions

- Complement, not substitute
- Inherent upside bias in cash flows
- Accrual accounting compensates for cash flow bias
- No transition cost for personal accounts
Social Security Cash Flows 1970-2078

Income (Excluding Interest)

Expenditures

2018: Crossover Year

Source: www.ssa.gov/OACT/TR/TR04.
## Three Measures of Social Security Obligation

(Trillions of $, PV beyond 2003)

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<td>+ Trust assets, end of 2003</td>
<td>1.5</td>
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Cash Basis: Single Individual

Age 15: Starts work
Age 65: Retires
Age 85: Dies

A = Unified budget surplus effect
B = Unified budget deficit effect
Open Group: In Balance
Hypothetically at 75 Years

Tax receipts
Benefit payments

0 Year

75
Accrual Basis: Single Individual

Age 15: Starts work
Age 65: Retires
Age 85: Dies

C = Accrual deficit effect
Closed Group: Costs, Benefits & Funding 1937-2003
(Trend lines do not represent actual data except for 2003)
Personal Accounts: Transition Cost

Accrual Accounting
- Accrued liability
- Public debt liability
- Accrued cost

Budgetary Accounting
- Public debt liability
- Unified budget deficit

Scenario 1: No change

Scenario 2: Establish personal accounts

Accrual Accounting

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Budgetary Accounting

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Beneficiary Assets

Accrual Accounting

- Defined benefit asset
- Defined contribution asset

Scenario 1:
- Defined benefit asset: 10

Scenario 2:
- Establish personal accounts:
  - 7
  - 3
Why Accrual Accounting?

- Complementary measurements
- Prediction and feedback
- Anchored to real people, real work, right now
- Disciplined GAAP framework
- Generational equity
- Sustainability
The End

- 1492—A Good Year
- Truth