2006 Defense Economics Conference: The Defense Department's Future in a Changing Macroeconomic Environment

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Jerry Pannullo, *OSD Co-sponsor*
Soyong Chong, *OSD Co-sponsor*
John E. Whitley, *OSD Co-sponsor*
Stanley A. Horowitz, *IDA Project Leader*
Ayeh Bandeh-Ahmadi, *IDA Project Coordinator*

Speakers/Panel Members
Nariman Behravesh
Guy F. Caruso
David S.C. Chu
Martin S. Feldstein
J.D. Foster
Stephen Heffler
Douglas Holtz-Eakin
Michael S. Lofgren
David L. McNicol
Michael L. Mussa
Solomon M. Mussey
John L. Rafuse
David M. Walker

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PREFACE

Since 1991, the Office of the Secretary of Defense (Program Analysis and Evaluation) and the Institute for Defense Analyses (IDA) have jointly sponsored a conference on defense economics. In 2006, the conference topic of the changing macroeconomic environment provided an opportunity for participants to consider the Defense Department's future in this environment.

This publication, IDA Document D-3324 (Nonstandard), contains the proceedings of the 2006 conference, held at IDA in Alexandria, Virginia, on September 21, 2006. IDA prepared the publication under a task titled "Defense Economics Symposium." The document did not undergo formal technical review. The conference proceedings were recorded, transcribed, and edited for clarity before they were reviewed by the participants for accuracy.

Contents

Welcome (David L. McNicol and Jerry Pannullo) 1

Keynote Address (Douglas Holtz-Eakin) 5

Macroeconomic Environment/Globalization (United States and the World) (Nariman Behravesh and Michael L. Mussa) 17

Macroeconomic Implications for the DOD Budget (J.D. Foster and Michael S. Lofgren) 39

Luncheon Speaker (Martin S. Feldstein) 57

Drivers of DOD Cost Growth: Personnel Costs (Solomon M. Mussey, Stephen Heffler, and David S.C. Chu) 73

Drivers of DOD Cost Growth: Fuel (Guy F. Caruso and John L. Rafuse) 91

Closing Remarks (David M. Walker) 107

Appendix A: The World Economy in 2007: Soft or Hard Landing? (Nariman Behravesh) 123

Appendix B: Global Economic Prospects, Early September 2006 (Michael L. Mussa) 147

Appendix C: Macroeconomic Implications for Department of Defense Budget (J.D. Foster) 163

Appendix D: Budget Process (Michael S. Lofgren) 169

Appendix E: The Financial Status of Medicare (Solomon M. Mussey) 173

Appendix F: National Health Spending Trends (Stephen Heffler) 179

Appendix G: Department of Defense (DOD) Manpower Costs: Challenges and Opportunities (David S.C. Chu) 183

Appendix H: Outlook for Energy Markets (Guy F. Caruso) 191

Appendix I: What's Oil Got to do With It? (John L. Rafuse) 203

Appendix J: DOD Transformation: Challenges and Opportunities (David M. Walker) 209

Appendix K: Agenda 221

Appendix L: Attendees 223

Appendix M: Biographies of Speakers 229


1145-1300 Luncheon Presentation
Martin L. Feldstein, President & CEO, National Bureau of Economic Research
1315-1445 Drivers of DoD/Cost Growth: Personnel Costs
1430-1530 Drivers of DoD/Cost Growth: Fuel
1545-1630 Closing Remarks
David M. Walker, Comptroller General of the United States
1645-1800 Reception
2006 Defense Economics Conference











WELCOME

David L. McNicol
Jerry Pannullo

DAVID L. McNICOL (Director, Cost Analysis and Research Division, IDA): Welcome. IDA is pleased to serve with the Resource Analysis Deputate of the Office of Program Analysis and Evaluation (PA&E) as co-sponsor of this year's Defense Economics Conference.



You'll see on the handout that this is listed as the tenth Defense Economics Conference. More precisely, it's the tenth since IDA became co-sponsor. The conference was actually initiated in 1986 by PA&E under the direction of David Chu, who will be with us later this morning and speak this afternoon.

This year's Defense Economics Conference is notable for two reasons. First, the Conference is starting its third decade. Second, this is the first occasion in the 20-year history of the Defense Economics Conference on which we've had anything on the Conference agenda about the interaction of the Defense Department and the economy. There's an explanation for that, and it may be worth taking a couple of minutes of your time for me to explain.

The interaction of defense and the economy was a hot topic of public debate during the first Reagan administration, roughly 1981 through 1984. There was a fair consensus then that defense spending needed to increase. The magnitude of the increase was very controversial, however. We in PA&E [at the time] thought of the issue as a particular instance of the classic question asked in defense programming: How much is enough? Framed this way, the discussion includes both the cost of defense and the value of insurance against threats purchased by those costs. But a large fraction of the public debate at this time was concerned only with the economic consequences of higher defense spending, and obscured rather than illuminated the controlling question of how much defense the United States should buy.

The arguments offered on the economic effects of higher defense spending generally were of little or no intellectual merit. They were of concern to the

senior DOD leadership, however, because they could influence the degree of public support for the increased defense spending that the administration favored. So the Defense Department's small economic staff occupied itself trying to demonstrate simply, directly, and intuitively why the economic arguments that were being made were not deserving of any place in the public debate.

We had active cooperation from the then relatively new Congressional Budget Office. Some shots across the bow were fired by notable academics on op-ed pages. On several occasions I evoked Professor Feldstein's name while he was chairman of the President's Council of Economic Advisors, pointing out that the White House would probably not look favorably on economic claims in support of increased defense spending that some in the Defense Department wanted to make. I should say this use of Professor Feldstein's name was totally without authorization, but we did it in any event. We had open help from the late Congressman Les Aspin. Congressman Aspin had an undergraduate degree in economics from Yale and a doctorate in economics from MIT, and had recently become Chairman of the House Armed Services Committee. In early 1985, he held 2 days of hearings before the House Armed Services Committee that were designed explicitly to lay the economic arguments about increased defense spending to rest.

These and other similar efforts resulted in a remarkable degree of consensus that arguments about the economic effects of higher defense spending in fact did not deserve a place in the public debate. The economic arguments that had been commonplace during the preceding few years had faded from the public discussion by late 1985.

They lived on in my memory and the collective memory of the office as a place where we did not want to go. So I was somewhat surprised when I heard of the topic of this year's Defense Economics Conference and asked as politely as I could manage: "What has possessed you people to reopen this pernicious conversation that we worked so hard to shut down?"

The answer was that Rick Burke [PA&E Deputy Director for Resource Analysis] had read Thomas Friedman's "The World is Flat." The more I thought about it the more it seemed to me that was a very sensible response. I'm not entirely sure that the fundamental points that Friedman examines are economic in nature. They certainly have profound economic consequences, and in the past 20 years the environment in which the Defense Department operates, including the economic environment, has changed enormously.

So on reflection I've recanted. The choice to take the topic of this year's conference as "The Defense Department's Future in a Changing Macroeconomic Environment" was not, as I suspected, a misguided idea that ignored lessons

from the not-so-distant past but a very good one that looks forward. I congratulate the people from PA&E and IDA involved for putting this program together and look forward to the sessions that we're going to have in the course of the day.



JERRY PANNULLO: Good morning. I'm Director of the Economic and Manpower Analysis Division within the Office of Secretary of Defense, Program Analysis and Evaluation. PA&E, as Dr. McNicol said, is a co-sponsor of the conference. On behalf of Brad Berkson, the Director of PA&E, I welcome you all to the conference.

We have some familiar faces among this year's speakers as several of them have appeared at these conferences in the past. We're delighted to have them again. As Dr. McNicol said, we're going to be talking about macroeconomics and defense. We're going to start at the top and work our way down. Our panels begin with the United States and world macroeconomic environment, then we'll narrow it down a bit and talk about the U.S. Federal budget and the Government's macro outlook, then we'll go down to the cost drivers for defense—health care and labor costs—and our final panel will be on energy costs. All of these are matters of importance and interest to senior leaders in defense, in the administration, and on Capitol Hill.

KEYNOTE ADDRESS

Douglas Holtz-Eakin

JERRY PANNULLO: Our first speaker today, our keynote speaker, is Dr. Douglas Holtz-Eakin. He's one of the familiar faces. He spoke at our compensation conference 2 years ago and we're delighted to have him back again.

Dr. Holtz-Eakin is the director of the Maurice R. Greenberg Center for Geoeconomic Studies and the Paul A. Volcker Chair in International Economics at the Council on Foreign Relations. Before his current role, he was the sixth director of the Congressional Budget Office, serving a 4-year term. Dr. Holtz-Eakin was also the chief economist for the President's Council of Economic Advisors. He's a Trustee Professor of Economics at the Maxwell School at Syracuse University, where he served as Chairman of the Department of Economics and Associate Director for the Center for Policy Research.

He has held academic appointments at Columbia and Princeton Universities. Most recently, and, perhaps most notably, he was selected to give the keynote address at the 2006 Defense Economics Conference.

DOUGLAS HOLTZ-EAKIN: Thank you very much IDA and PA&E for having this event and for selecting me, thereby adding a real accomplishment to that long list of things you graciously mentioned.



I confess that when I got the invitation to this conference, my initial response was panic because I couldn't figure out exactly what it was that I was supposed to bring to this audience. Maybe it was to give you the big picture about the future, which means you look into the crystal ball and say what's going to happen, and I have no idea.

So I did what economists usually do in moments of panic, which is I fled home to supply and demand curves. I started to think about what it would be in the future that would affect both the demand for the DOD's unique capabilities and its ability to supply them. And that doesn't mean I

have anything interesting to say, but it did calm me enough to stand up here this morning.



First and foremost, I think it's worth thinking about some of the things that we already know that are easily forecastable and have consequences for the world in which the DOD mission is going to operate.

The leading one, at least in my opinion, is world demography. We know that the entire world is aging, that there is, across the globe, a confluence of lower fertility, increased longevity, and lower infant mortality, and that confluence will do three things.

First, the world population will grow much more slowly in the future then it did in the past. The world population quadrupled in the twentieth century. It's expected to grow by about 50 percent by the twenty-first—slow overall global population growth.

Second, I think we will see aging everywhere. As populations get older we will see a different mix of workers versus those who are nearing the end of their working careers or in retirement, and that will affect the ability of the DOD to recruit those who will supply the defense mission. That's certainly notable in the United States; but it's also going on everywhere else, and it's worth keeping in mind.

Third, this isn't a uniform process. It's happening at different rates in different places. It's already advanced in Japan, where we're seeing the labor force beginning to decline. It's going to be advanced in places like Italy, where immigration flows are relatively minimal, and in the United States it's been mitigated somewhat by the long history of relatively open borders and immigration. The native-born population in the United States has sub-replacement rate fertility, but immigrants allowed in the United States continue to grow in this population. Sometime in the next month we're going to reach a population of about 300 million people in the United States, and that's attributable to immigration. But globally, we will see a different mix of populations than we've seen in the past.

One of the things that will happen as a result is that those places that we have thought of as traditional allies, like Europe, will become physically less dominant in the world.

It is easy to forecast that without large immigration flows we are going to see populations begin to shrink. Italy is notable. France is notable. The aging process is more advanced in Europe.

If you combine the diminished size of those populations with a labor productivity history that has not been comparable to the United States, you have a smaller resource base from which to draw defense and non-defense resources. It will raise the question as to what the appropriate reliance on European allies should be in order to have the appropriate strategic relationships in trying to exert the military mission.



That demography is largely baked in the cake. How we think about it has not yet been settled, but I think it's an important issue. The demography will not only affect the question of how big countries will be and what kind of influence they will have. It will also affect pressures that will arise because of the economic shifts. We've seen the leading edge of this already. The attention paid to China and India is just the beginning of what will be a shift in the global allocation of capital and labor, where younger workers abroad will be needed to fill in for the shortage of workers in the aging developed countries. With that will come economic stresses as we either have the desire for workers to go to the existing capital basis, and that means immigration, or in the absence of that, capital flowing to places we may not be entirely comfortable with when we want to put our resources in places like Turkey. Those economic stresses will, in fact, interact with the alliances and the strategic decisions to produce a very different world in the future.

I think the upshot is that we will have both the potential demand for the military because of these economic stresses playing out and the reliance on not just diplomatic but military means to influence them, and it will affect the supply. The supply will come in the form of different allies and a diminished number of young people in the United States.

The other threat that the demography places is really simple, and it's the supply part in the United States and it's the well-known pressures that come out of our demography on the U.S. budget.

I am prone to wax for hours on this, but I'll give you the short version, which I think everyone has heard before. If you take U.S. demography baked in the cake and you watch the baby boomers who retire between now and 2030 it will raise the demands for spending into these entitlement programs.

The numbers are pretty simple. In Social Security, which is the one that gets most of the attention, we're spending about 4.5 cents of the national dollar. So Social Security benefits by 2030 would be up to 6.5 cents on the national dollar. It then drifts north thereafter to about 7 cents as the longevity is expected to increase, and that's the little one because that's money and more people in the eligibility age for those programs.



Medicare and Medicaid combine not just more beneficiaries but the potential for rising spending for each beneficiary. Historically we've seen that spending per beneficiary rises 2.5 percent faster than income per capita. So there's a horse race between spending and resources.

Spending wins by 2.5 percent a year. So the apocalyptic projection is that if you combine the known demography with the historic cost trends, we will go from spending 4 cents of our national dollars on Medicare and Medicaid on the Federal level to 22 cents of our national dollars by 2050. Of course the usual refrain is that that just can't happen, and people like the Medicare trustees say no, no, no, it won't, it will slow down; but even the Medicare trustees who are assuming some change in the future that is not yet identified see spending rising from 4 cents of the national dollar to 12 cents. So those programs triple in size as a fraction of our national income.

This is an important phenomenon for this group. It's important because the degree to which our economy will prosper in the years to come depends on how we react to this self-inflicted threat.

To the extent that we control these spending programs and as a result avoid saving too little, we will continue to have our economy grow at adequate rates. Productivity will augment that and we will see a large enough economic pie to deal with both the demands of our older population and also the demands of other national needs.

If we don't—if we let this go forward—it will attack what I think of as the three pillars of the post-war economic success of the United States. The first thing that will happen is that we will end up with a much bigger government. The United States has been successful thus far largely through its reliance on the private markets, the flip side of which is contained government. The second thing is that, with U.S. Government spending so large, we will raise taxes regardless of our political affiliation, and those taxes will interfere with the function of the economy and diminish its overall performance.

The third thing is that—not to cast aspersions at our elected officials—in that kind of environment, there will be a phenomenal temptation to achieve policy aims through nonbudgetary needs. That will take the form of mandates and regulations, all of which inhibit the flexibility of the U.S. economy. And flexibility has been the hallmark of U.S. ability to perform better than other developed economies.

The first thing to remember is that we're going to have to deal with this. How we deal with it is central to the future of our overall economic performance in the macroeconomic environment, which the DOD will operate in.

The second is that the DOD is going to be in the middle of this fight for resources, and I think that this resource fight in the years to come will be substantial.

This group knows more about the outlook for the DOD than I do, but there are really three things that you can point to and observe that suggest that the pressure is going to rise.

The first is the CBO's annual look at the future defense program, which involves pricing out its implications over a 15- or 20-year horizon. Each year for the past couple of years the stylized picture that has come out of that exercise has been quite striking. It says that if you take the current policy at face value and price it out in the next decade and a half, you're going to see defense spending rise in real terms about 20 percent above where we are now, 15 percent above the height of the cold war. I wasn't party to the history of whether you did or did not talk about what's big enough or not big enough, but it's coming again. We're going to have this discussion if we proceed down this path.

And that's just one funnel of spending at the moment. The second is we are spending a lot of money in Iraq and Afghanistan and on other activities of that sort, and I don't think anyone believes that is a transitory phenomenon. This is now a part and parcel of the economic and security environment, and we will have to fund that on an ongoing basis. We've seen, I think progressively over the past 5 years, an increasing disintegration of the line between base spending and supplemental spending. These activities are emerging.

I think the latest QDR [Quadrennial Defense Review] basically admitted that. It said, look, we have to have the ability to fight some sort of near peer war of a traditional type and the ongoing fight against terrorism. All of that suggests that, in addition to the current path for big ticket entitlement programs, the current path for defense is also one in which there will be a demand for greater resources, and this is going to be a very tough environment for getting the resources for the base budget and getting the resources for the war on terrorism in the midst of these other demands for Federal spending.

That's a consequence of the demography. Domestically, it's a consequence of the security environment internationally. Those are the basic trends I think are very much baked in the cake. There are others where the outlook is more uncertain, and among the great macroeconomic uncertainties in recent years has been the path of world oil prices. That has had a tremendous impact on the U.S. economy, in fact, smaller then what I had expected, but significant nonetheless.

Going forward it's sensible for this group to keep on its radar screen the realization that energy lies at the center of all of the important economic, diplomatic, and strategic decisions. The location of petroleum supplies is a fact. The strategic instability of those places is well recognized, and despite politicians' desire to proclaim energy independence and do so quickly, we will rely on petroleum as an energy source for the next two decades almost certainly. That may produce the demand for the military, and I think it's important to recognize that in thinking about the future environment in which the DOD will operate. There is no way to insulate ourselves from that, and it will as a result be a constant part of the strategic environment. It will be a big part of how the economy is performing in the macroeconomic environment. Keeping your eye on world oil prices is a good reflex, something to check every day.

In addition to the macroeconomic consequence is the part that's noted in the QDR, the worry about near peer war perhaps driven by concerns over oil security. The other concern is terrorism related to oil and oil infrastructure. This reminds us that it will be important in thinking about the terrorism mission for the United States to somehow come back and think hard about what homeland security actually means and what exactly will be its objectives.

Here I think we've not really had a terribly coherent public discussion. It's probably unfair to expect one given the circumstances under which all of this arose, but you can think of the homeland security issue from the economic perspective as the goal of minimizing the cost of both disruptions and the activities necessary to prevent disruptions. There are lots of different ways to deploy economic incentives to do this and try to think about the nature of the losses.

I guess the most important thing is to recognize that this is not necessarily uniformly a government function. There are lots of private-sector incentives to engage in activities that would prevent, detect, and stop disruptions and also minimize the cost of any disruptions that might happen.

One extreme we could ask of people is basically to self-insure. Let them bear the cost of things to happen. That's a pretty powerful incentive. If you're going to bear the economic burden of any attack, there's a tremendous incentive to take care of it.

It does, however, have some downsides; costs are not spread across the population, and people often don't want to or cannot fully bear those costs. So we often turn to financial markets as a way to voluntarily spread risks and provide incentives for risk mitigation.

And to my mind, the U.S. private sector already has a phenomenal ability to spread the risks of economic consequences of terrorism by financial capital markets—which are huge, the wide variety of debt and equity instruments



that can be used to shift risk burdens, and the use of insurance and pricing of insurance to give people incentives to take necessary precautions. All of that, I think, has been undervalued in the debate over homeland security.

Instead, the focus has been largely on the government functions—those things that are genuinely public goods, the kinds of intelligence and monitoring of potential terrorist events and essentially the use of the taxes to spread costs.

When things happen we're going to put their costs into the budget and spread the cost to the taxpayers. If we continue to think of homeland security as a uniquely government function—not something I would advocate, but one that seems to be the current thinking—then that's another piece of budgetary stress, and it will be difficult to continually ask the question: Are we doing enough? Ultimately you're going to want to calculate what attacks have been prevented and what risks have been mitigated, which are unobservable, so we're never going to have the ability to have a nice coherent discussion about this.

One more budgetary risk: At all of the places where the DOD will potentially operate, whether within the large macroeconomic environment, in the Federal budget looking for resources, or within the DOD's two missions at the moment, I think you'll see a tremendous amount of stress in years to come. It's already been baked in the cake.

Given that, the last thing to really focus on is that we will have to attempt, in the intersection of those events, to sort out how we think about the rise of other economic powers, whether it be China, Russia, or India.

China has a system that is at the moment heavily centralized by an attempt to move closer to a market system. How patient will we be with their economic transition, their demographic transition—which is really quite striking? That will get very old very fast.

Russia has taken a traditional commodity wealth approach probably at a detriment to its market-based incentives. Oil has produced a potential rise in the standard of living, but it has not produced a large entrepreneurial class with a commitment to market-based economics.

The United States will continue the third approach—to raise its living standards using a traditional market-based approach.

How will those three economic models interact? India will be the rising influence of Asia as a whole, China will use its centralized powers to try to

outstrip India, and Russia will evaluate the role of its oil in international influence. It is going to be an economic environment in which I think international stresses will become very clear.

Just think of the example right now of the Chinese holding U.S. treasury securities and the concern that has raised in many quarters. It's important to try to come to some clear understanding of the nature of that kind of concern. What is the genuine security threat from the financial holdings of the Chinese? It seems unlikely that the threat really comes from a willingness or ability to dump treasury securities on the market.

I don't think anyone would play that out as the way they would do this. Instead it seems to take the form of a softer economic power, one in which their reserve holdings are part of a rising well that gives them the ability to act as a lender in the Asian region and, as a result, bypass the traditional institutions of the international community.

That's a source of Chinese power. How these kinds of entities start to use their economic power in that way, how it influences our decisions to use our economic power and other instruments of diplomacy in the military, I think, is a huge part of the macroeconomic environment and the central question from the big picture with which the United States has to come to terms.

We're at the beginning of that process. I think it all traces back to the forces of demography and economics that are already largely apparent. It's important to play these forces out over a long enough period to develop a strategy for the long haul.

That's what I end up with when I go back to the safe refuge of supply and demand. We will see forces that affect the ability to supply the mission in the United States. They're largely budgetary and driven by the demography, and we have clear demands—demands that are known in the way of terrorism, potential demands that are known in the form of distribution of petroleum supplies, and then unknowns that really have to do with how these international tensions play out over the next several decades. And I think a strong focus on how those tensions play out is probably an appropriate thing at this time.

I promised to get done in time and to take a few questions, so we'll stop now. If there are any questions, I'll be happy to take them. Thank you.

STANLEY A. HOROWITZ (IDA): It seems to me that one of the frightening aspects of your remarks had to do with the implications of rising health care entitlements and it didn't really seem like—and that's obviously a large threat to the viability of a growing U.S. economy, and the options that I think you laid out—none of them seems both likely and beneficent. It seems like this is really going to be a problem.



Do you have any thoughts about how we can cope with this? It sounds like the only way—

HOLTZ-EAKIN: You want me to fix this problem?

HOROWITZ: Yes. It's a growing American economy that can do the job. It seems like we have to cut the entitlement. Does it seem like there's any prospect of that happening?

HOLTZ-EAKIN: That's completely an unfair question. Let me give you three different pieces of a nonanswer.

The first piece is the political question that people always ask: What will it take for us to do this? I say this, you don't have to be a genius to see this. It's the voice of doom role, lines diverge forever.

How does the political system come to terms with this? Here's my current thinking on that, which I promise you is not right. These require Presidential attention. There's no doubt about it. These are big changes to the central social programs and only the President can mobilize the political apparatus to do that.

So why should a President do that? Number one, we've seen Presidents try. This President spent 60 days in 60 towns on the topic of Social Security. So effort has been there. And that's already happened.

Going forward, I think there's a good reason for Presidents to care. The budgetary problems that we face will become more profound as the baby boom begins its retirement, which is where we are at.

After 2010, the Social Security surplus will start to diminish. So every year, Congress is going to look somewhere else for a little more of the money that they used to get out of the Social Security surplus, and that's going to create a lot of budgetary pressures. Basically I think if you run for President in 2008, you also want to run in 2012—that seems to be the way this goes—so then, you want to govern in 2016. I don't see how you can get to 2016. I mean, you can temporize and, you know, rob Peter to pay Paul. You can do a bunch of things to get somewhere, but getting into 2016 you have to deal with those programs.

That says that Presidents are now going to have a personal incentive to deal with these issues. The way that politics works in my view is that, as President, you don't try to surprise them in 2016 with a big fix on these things. Bad legacy. That means you have to start earlier and that means in your first term you might even campaign and warn people that something's up.



The cynics will say nobody in their right mind campaigns on this. I see that. However here's the second piece. When they passed the prescription drug law they put in this little feature that when Medicare takes more than 45 percent general revenue for its financing, somewhere in the 7-year horizon the actuary has to raise his hand and the trustees have to flag it. They did that once and they're going to do it again in March 2007. It's inevitable.

Once they do that the second time, the President of the United States must submit in the next budget—which will be February of 2008, election year—proposals to bring Medicare back under the 45 percent.

So in the middle of a Presidential campaign this President will in effect have to do that. It's baked in the cake. And then the law provides for these expedited proceedings by which Congress does nothing and they deliberate, but they will have to deliberate and pass it on; they don't have to actually change it. That brings a couple factors into the equation. The first is that in the middle of a Presidential campaign this issue will be on the table, and it's a health care issue. That's all there is to it. The second is that if they don't fix it, it will happen again, and then the Groundhog Day shaming mechanism kicks in and I don't see how you avoid that forever. So I think there is a political reason for taking these on.

The other two parts of the answer are, you should think differently about the entitlements. Social Security is just money, and we pick up money on part of the economy and the benefits we promised in that process are here. The revenues we've decided to dedicate to it are here. It's been fixed before and fixing it tomorrow is not complicated. They decide what kind of Social Security system they want with the financing in place to support it and move on.

The Medicare program is very different. It's a health care problem. It affects Medicare. It affects Medicaid. It affects TRICARE. This is a threat to everybody, and how we fix that, I think, is more complicated. It's not just money. You have to think not just about the programs but about the underlying health care system, and it's really a much tougher issue.

That means it will be more incremental and should be, I think. I have a long spiel on how I would do it; but they haven't made me health czar. But I do think there's good reason to do it. There will now be a political reason to do it, and that's a suggestion we'll actually take on in a practical fashion. That's my hope.

The longer we wait, the worst the fix will be, that's for sure. So, sooner is better in many ways.



JEFFREY F. WERLING (University of Maryland): I'm intrigued by your proposal to try and use financial markets more to distribute the risk of terrorism. I'm no expert in this, but I did recently read some literature on the Price-Anderson [Nuclear Industries Indemnity] Act.

When the tail distribution probability is such that there is a high likelihood that the liability of an event could be in the hundreds of billions of dollars, ultimately Government is the insurer of last resort because any self-insurance is not going to be enough and—

HOLTZ-EAKIN: There's a big difference between self-insurance and using financial markets.

WERLING: I agree, but either way you could run into a liquidity problem where the Government is the insurer of last resort. In that tail distribution, there may be a 1 or 5 percent probability of a $1 trillion incident. [I'm not sure] the financial markets price insurance for those types of events correctly.

HOLTZ-EAKIN: They're certainly not going to price it correctly if they're never put on the hook. So if you give them this sort of catastrophic backstop free by the Government, I promise you they won't price it correctly, and that's the reflex that I've observed in the current debate. So that's sort of point number one.

Point number two is this. I forget the numbers; but when we looked at this with regard to the Terrorism Risk Insurance Act itself, the way it was being set up, the first thing to note is that that particular backstop is completely independent of dirty bombs and nuclear sorts of events, which are the ones I want to worry about. So presence or absence doesn't change the liabilities at all with regard to those because those are all carved out of these policies anyway, and there's no reinsurance or something that gets carved out.

So we're now down to the stuff that is not like that, that isn't losing big chunks. Why not let the financial markets bear this risk and the size of this—everyone always measures the size relative to sort of insurance company reserves because that's a narrow way to look at the problem.

If you've got a company that's uninsured and you as an investor recognize

that, you might want to hold that company's equities or bonds and as a result you're going to send that price signal to the broader financial markets. Compared to the financial markets, the 9/11 events, things like that don't look that big. That's my point. We have undervalued the incentive effects of the bond-holders and the equity holders not getting all of their money. That's one way to do this.

And I think it's been undervalued, and I think if this is, as the experts say, a permanent part of the landscape, then what you want to do is permanently price the economic behavior, not insulate people from it, and the reflex has been to say,"This is here forever, but let's insulate people from it and use the Government to do that." No, that's a bad idea.

What you want to do is build it into the economic landscape on a permanent basis and that strikes me as a sensible thing to do. I appear to be a minority.

Thank you.

PANNULLO: Thank you, Dr. Holtz-Eakin. We have a small gift for you. This is a Jefferson cup. For us, it symbolizes making the most of the resources you have. The story of the Jefferson cup is that Thomas Jefferson had four silver wine goblets. He had those melted down and formed into eight cups that he designed and they've become known as Jefferson cups.

HOLTZ-EAKIN: Thank you.







MACROECONOMIC ENVIRONMENT/ GLOBALIZATION (UNITED STATES AND THE WORLD)

Nariman Behravesh
Michael L. Mussa

JERRY PANNULLO (Director, Economic and Manpower Analysis Division, OSD(PA&E)): Our first panelist for this session is Dr. Nariman Behravesh. He is Chief Economist and Executive Vice-President for Global Insight, where he is responsible for developing economic outlook and risk analyses for the United States, Europe, Japan, and emerging markets.

Dr. Behravesh was the host of a PBS television series "Inside the Global Economy." Among the positions that he held prior to joining Global Insight are Chief International Economist for Standard & Poor's, President and CEO of Oxford Economics U.S.A., and Group Senior Vice-President at the WEFA Group. Earlier in his career he worked at the Congressional Budget Office and the Federal Reserve.

He holds Ph.D. and MA degrees in economics from the University of Pennsylvania and a bachelor of science from the Massachusetts Institute of Technology. He also holds the world's record for the most PowerPoint slides briefed per minute. Dr. Behravesh is fluent in several languages. He will deliver his remarks today in English and economics.

The second panelist is Dr. Michael Mussa. He's been a senior fellow at the Institute for International Economics since 2001. He served as Economic Counselor and Director of the Department of Research at the International Monetary Fund, where he was responsible for advising the fund's management and executive board on broad issues of economic policy and for providing analysis of ongoing developments in the world economy.

Dr. Mussa served as a member of the U.S. Council of Economic Advisors during the Reagan administration. He's been a faculty member of the University of Chicago's Business School and of the University of Rochester's Department of Economics. He was also a visiting faculty member of the City University of New York's Graduate Center, the London School of Economics, and the Graduate Institute of International Studies in Geneva, Switzerland.

First up, Dr. Behravesh.



NARIMAN BEHRAVESH (Chief Economist and Executive Vice-President, Global Insight): Thank you very much. Good morning everybody. It's a great pleasure to be here. My role, along with Mike's, is to talk about the macroeconomy in its broadest terms.[1]

I'm delighted that Douglas Holtz-Eakin was able to talk this morning about the big picture in terms of long run. I am going to focus a little more on the near-term issues, and Mike will probably do so as well.

The biggest single question we probably get asked these days is this: What kind of a landing are we headed for? Is it a soft landing or a hard landing? The bottom line is that we're in for a soft landing; however, there are still distinct risks out there.

The way we'll work it this morning is we will each have about 20 minutes to speak. Mike and I talked ahead of time not so much to coordinate a message for this panel, but to decide that I'll do a quick global overview and focus on the United States, and then Mike will spend a fair amount of time on the other regions, the other key countries and the economies of the world.

I've got six questions to raise of which I'll answer three, and Mike will cover the other three. I don't know if he'll answer the specific questions.

The first point to be made is that the global economic environment is still pretty benign. However, as I said, some risks do loom large and we have to address those, vis-à-vis the United States.

The real question is whether this is a mid-cycle correction, as some people have called it, or whether it is something worse. Our best guess is that it's a mid-cycle correction.

This slide is a quick global snapshot of global GDP [gross domestic product], and of global industrial production. You can see that 2006 was quite a good year by global standards, with almost 4 percent growth. In our snapshot, we're saying growth has been at 3.9 percent, occurring mostly because of the United States, but also in part because there's not a lot of independent growth outside of the United States. I'll define what I mean by independent growth in a minute.

So we've predicted global growth next year at 3.2 percent. Now, some of you who look at the IMF [International Monetary Fund] forecast will notice that our numbers are different. Their forecast of global growth is much higher.

[1] Appendix A contains copies of the material that accompanied Nairman Behravesh's presentation.

They use what is referred to as "purchasing power parity" to weigh GDP across the world. We use market exchange rates.

The reason the IMF numbers are higher is because they put a much bigger weight on China. The problem I have with that is that China's GDP numbers are highly unreliable. So you've got a global growth number based on giving a high weight to highly unreliable GDP numbers.



If you look across the world, you can see growth is very uneven. In the industrial world, North America, principally the United States, is doing much better than Europe and Japan, although Japan has recently done a little better and so has Europe. But, in the emerging world it's still very much Asia that dominates; other regions have done well, but mostly because of the commodities boom, whereas Asia's growth is in some sense more fundamental and more durable.

A crash in commodities prices, if it were to occur, would be a bad blow to Latin America and parts of the Middle East and Africa.

The theme that I want to touch on now is that the global economic environment is still benign. Inflation is still pretty tame even though we're all worried about inflation creeping up. It has crept up in the United States, but in other parts of the world it's still low despite high oil prices. That is remarkable, and there are lots of reasons for it. We probably don't have time to go into all of them, but this is probably one of the better pieces of news in the last few years, in terms of the global economy.

As a result of that, interest rates are still quite low, historically speaking, even though monetary policy has become more restrictive in many parts of the world, including the United States. I'll show you some slides on each of these themes.

We also hear a lot of worrying about fiscal policy. Douglas Holtz-Eakin talked about this. Fiscal policy is still pretty loose, not just in the United States but also in Europe and Japan.

So you've got a monetary policy that is not too tight and a fiscal policy that is loose. That may be good or bad, but it does suggest there's still a little bit of a tailwind in terms of global growth.

Regarding exchange rate volatility, there is a lot of hand ringing going on about the dollar or hard-landing of the dollar. What's pretty amazing is that exchange rate volatility has also been remarkably tame, and is probably going

to remain fairly muted. Nonetheless we are dollar bears, as I'll explain in a few minutes. We do think the dollar is going to continue to slide.

Now, having said that, we are in a situation—and we'll talk about this as a risk—in which asset prices have been fairly volatile. First, we saw this trend in the stock market. Now we're seeing it in the housing market.

Two other points to be made here: The kinds of terrorist attacks we have experienced so far on airlines, train stations, and other such institutions have almost no impact on overall GDP. Clearly they've had a huge impact on certain industries and on certain regions, such as New York City, and the airline industry, but the overall effect on GDP has been muted.

There was a lot of doom and gloom after 9/11 about the end of globalization. It didn't happen. If anything, globalization accelerated after 9/11. All I'm saying is that terrorist attacks really didn't do much.

And finally, perhaps the single most notable thing one can say about the United States and global economies, as Douglas Holtz-Eakin suggested, is how resilient they both have been in the face of repeated shocks: wars, terrorist attacks, and high oil prices. Growth has continued. So it says a fair amount about where we are and where we are going.

This is one of my favorite slides. This is called "the great moderation." This is not my phrase. I can't remember who actually coined it. I know Ben Bernanke, Chairman of the Federal Reserve, has used it a fair amount. This slide shows the path that inflation has taken over the last 20 years. You can see we had a sharp rise and then a steady decline, with a few ups and downs, in the rate of inflation over the last 20 years.

There are four oil shocks in this slide. You can only see three of them. You cannot see the last one, which is right there. Again, I can spend a lot of time on this, but the summary of our view is inflation has come down quite a bit and will remain low. Why? There are a lot of reasons for it. They include the role of the central banks in fighting inflation, globalization, and deregulation.

I think a lot of people focus on this and keep talking about the role of China. It's not just China. Deregulation and the role of central banks have contributed to this decline in inflation. So we're fairly optimistic on inflation. Yes, it's crept up, but, it will remain low. As a result, even though interest rates have risen, we see that among the big economies—and let's just focus on the United States, where interest rates fell the most and have risen the most—interest rates are still low relative to historical levels, and lower than they were in 2000.

So, yes, short-term interest rates have risen, but they're still relatively low. The picture's even more dramatic when you look at long bond yields [yields of

30-year treasury bonds and other bonds that mature in 10 years or longer]. You can see again that long bond yields have declined quite dramatically over the last 20 years. Some of this is due to the lower inflation and the lower volatility of inflation, which has reduced the inflation protection premium on long bond yields.



Some of it, although only at the later stages, is due to the global savings glut Ben Bernanke has talked about. Frankly, I think that's overemphasized. I think there are a variety of other factors that have played into this very long decline in bond yields. Again, bond yields are rising, but not by very much. In fact, in the last few months bond yields have fallen again in the United States.

So, monetary policy and interest rates are growth-friendly, if you want to put it that way.

Here's a slide on fiscal policy. These numbers are from the OECD [Organisation for Economic Co-operation and Development]. Although the figures only go as far as 2005, the picture is basically the same in 2006. If you adjust for the business cycle, fiscal policies in the United States, the United Kingdom, and Japan are still stimulative.

So you might say, okay, this is a tailwind and not a headwind. Yes, there is tightening, no question about it—not a lot, but there is still tightening. Nonetheless, there is still a deficit. So in that sense this is still something of a tailwind.

Now, let's focus a few minutes on risks. Right now, in my opinion, the single biggest risk is a U.S. downturn—a much sharper U.S. downturn than we presently have that could, in turn, trigger a global downturn. The reason I worry about this is that there's not a lot of what I call "independent growth" in the rest of the world.

When I refer to "independent growth" I'm talking about consumer spending. A lot of people include investment in domestic demand (which is technically correct), but a lot of investment in places like China is tied one way or another to exports and to the external side.

So as the United States goes down, not only will exports weaken, but investment/capital spending is also likely to weaken. So consumer spending is the bedrock of domestic demand. There's nowhere near enough of that in the rest of the world to offset U.S. weakness. The U.S. consumer has been the engine of growth for the better part of 10 years in the global economy.

We will spend a few minutes on higher oil prices. Housing is not a problem in the United States, but it is in a number of other economies. We've talked about hard landing of the U.S. dollar so much, I can't get excited about it anymore, but we'll say a few words about that, then about this notion of false dawns in Europe and Japan, and then about the hard-line in China, which Mike can touch on.

We have a global scenario model, which covers 15 countries, and 7 regions of the world, linked together through trade and financial flows.

We did a quick-and-dirty scenario in which we asked what would happen to growth in other parts of the world if U.S. growth fell by 1 percent for domestic reasons.

We found that in the United Kingdom, growth would fall by four-tenths of a percent; in Germany, by three-tenths of a percent; in France, by three-tenths of a percent; and, in Japan, by two-tenths of a percent; meanwhile, we found that growth would rise four-tenths of a percent in China. So, there's no question that the United States is still very much an engine of growth. It does have a ripple effect across the world. It's big.

Regarding oil prices, the good news is that they've come down a lot in the last few weeks. Are we out of the woods? Yes for now, but the answer in the bottom line is probably not. Yes, inventories are high, but there's not a lot of spare capacity and basically demand is still growing faster than supply. Those of you who follow the oil markets know that OPEC [Organization of the Petroleum Exporting Countries] has essentially put a floor of $60 per barrel on the price of oil. So they've threatened to cut production if it goes below $60. So it's important not to get excited about much lower prices.

The good news is that prices have come down. But, I don't think it's going to come down a lot more in the next year or two. In this kind of environment there's always a risk of some kind of geopolitical event pushing prices up over $100 per barrel.

The recent increase in prices has been demand driven. There was no supply disruption as we had in the seventies and eighties.

What if there were supply disruptions? Let's say the Iranians block the Straits of Hormuz and 5 to 10 million barrels are taken off the market. Prices could easily go to $150.

There is good news again. Markets work. Sometimes it takes time. The longer prices stay high, the greater the adjustment will be in terms of supply and demand. Markets do work and they sometimes work with a vengeance.

I'll tell you a story. There's a lot of talk about peak oil. It's utter nonsense. Peak oil says we're running out of oil. We'll never run out of oil, by definition,

but let me give you some historical examples. In 1862, an economist by the name of William Stanley Jevons wrote a book called The Coal Question in which he predicted the United Kingdom would run out of coal by 1890 and it would be a disaster. It didn't happen. Why? Because of technology in the form of oil and natural gas.



In the late sixties and early seventies there was a popular school of thought, called Limits to Growth, which predicted we were going to run out of natural resources and that disaster would strike by the nineties. It didn't happen.

So peak oil is nonsense. It sells a lot of books and makes money for the proponents; great, more power to them, but it's nonsense. Let's be clear about that.

Moving on, this is the oil price forecast. We do expect it to stay up for a while, but as we get further out in the forecast horizon, we do expect demand and supply adjustments to occur and the price to come down at least to $40 per barrel and maybe lower.

The only point I want to make about this next slide on housing is that we all talk about a U.S. housing bubble. In terms of national numbers, we are not the outlier. There are other countries that are much higher in terms of house price appreciation. Now if you consider certain regions of the United States—the northeast, Florida, California—the numbers are higher; but nationally the numbers aren't that high.

Why is this occurring? Because of lower interest rates. The reason is that interest rates have been coming down and this is one of the consequences of low interest rates.

Now, finally I just want to spend a couple of minutes on global issues. We're running a huge current account deficit. Basically every other region—not every country, but every other region—has surplus, and now, of course, some of the biggest surpluses are in the oil exporting countries.

Is this a problem? For those of us trained as economists, we learned about stocks and flows. When you consider measures of flows out of the United States or into the United States (such as the current account, the saving rate, and the budget deficit), the United States is an outlier. But if you look at stock measures (such as the stock of national debt as a percentage of GDP, stock of external debt as a percentage of GDP, or net worth), we don't look so bad.

Is there a problem? Let me just show you this slide. This is the stock of external debt as the percentage of GDP. This slide shows the data through

2004. The 2005 numbers are similar; the U.S. stock of external debt is about 21 percent of GDP.

We have deficits of 5, 6, 7 percent of GDP and the external debt ratio is flat. There are good reasons for that, such as the path of the dollar and interest rate differentials. Again, we don't have time to get into those details, but this is not a scary picture so far. We're not headed for Armageddon. We're not going bankrupt as some economists are talking about. We might if we keep it up, but we're not yet. We're far, far from it.

At the same time, we are dollar bears. We do expect the dollar to keep coming down and adjustment has to occur. So we don't expect a hard landing, but we do expect the dollar to come down.

So this path is sort of consistent with the euro at maybe about [$1.50] in the year 2008, and a yen at around [$0.0095].

Now to the United States. How bad is it? Clearly the housing market is doing badly, we know that; but what's important here is other parts of the U.S. economy are actually doing reasonably well, and I'll just spend a couple of minutes on this and then I'll stop.

We do believe growth is slowing. There is no question about it. It is probably headed to about 2 percent. For next year we're actually predicting growth at 2.2 percent, but we're looking at three quarters where growth is at 2 or slightly below. Could it get lower than that? It's possible.

We know consumer spending is weakening, but it's important to say this: consumer finances and household finances are still pretty strong, and I'll illustrate that in a second.

There is no question that housing is headed for a bumpy landing, but it's not so much a bumpy landing as, probably, a prolonged slump.

In the early 1990s, the housing situation was not that good. In New England and the northeast, California, and Florida, we see a similar pattern.

The last numbers that came out this week suggest core inflation may have actually stabilized. So our view right now is that the Fed [Federal Reserve System] is probably done.

Capital spending is strong because profits are strong. And finally, it's important to say soft landings are rare in the United States. We had one in the sixties and one in the nineties but they're not that common an occurrence. I'm not saying it can't happen or that it won't, because that is after all our forecast, but it is important to say that there are risks.

This slide shows a quick snapshot of the U.S. picture. You see growth slowing in 2007 compared to 2006. In 2006, growth was about 3.4 percent while in 2007, it's expected to be 2.2 percent. Regarding inflation, the CPI

[Consumer Price Index] went up but will fall as oil prices come down. The dollar is sliding. The current account deficit stays high.

This is the quarterly pattern of growth and you can see how we got three quarters with growth at the rate of the 2 percent or lower, starting in the fourth quarter. This was the housing picture and what this shows is essentially where the houses are overvalued. The overvaluation is mostly in the northeast, Florida, and the west coast, but mostly California. We do expect an adjustment. This is single-family housing starts of new home construction and sales. We see a big drop. There's no question that it's a big drop, but notice that even at the bottom level here sales and starts are still fairly high relative to history. We don't think we're going back to the levels of starts that we had in the nineties, forgetting about the eighties or even the seventies.

Yes, this will be a big adjustment, no question about it, but not dramatic. People are going to ask: What about prices at the national level? We may actually see the first drop in house prices annually that we've seen since the great depression. Probably 5 percent, and that means in some markets, like where I live outside of Boston, we can see bigger drops. That's entirely in the cards.

Now, related to housing, consumer spending will be growing slower than disposable income. That's partly a function of what's going on in housing and partly a function of the slowing economy. In general, the savings rate will improve.

Finally, in terms of household finances: everybody is worried about the saving rates. Yes, it's a source of concern, but it's a narrow measure of household finances.

To me, net worth is a better measure, and much more interesting. I think in the end it's much more relevant, and you can see it has been rising. We do expect it to come down in large part because of the housing picture, but stay at relatively high levels.

If you look at the flow (saving), you might become very pessimistic, and if you look at the stock, you might think it does not look so bad.

Corporate profits—which, as I said, are one of the strong points of the U.S. economy—have been growing at double digits. They won't grow as fast going forward, but as a result of this you've got corporate cash flow at record levels as a percentage of GDP. Basically, corporations are sitting on a mountain of cash. Now, will they spend it? We think they will spend it, at least some of it. Capacity utilization is still high. There's still a lot of pressure on productivity improvements so we do think there will be a good deal of capital spending coming out of these funds.

Finally, this shows the performance equipment. Equipment has done very well; it bounced right back from the high-tech bubble. Structures haven't

grown strongly until recently. This is buildings. And they've come back quite strongly, and we expect that they will stay strong.

This is the last slide. You can see these are exports and imports as a percentage of GDP. We do expect, as I said, the dollar to fall and we expect (as a result) the import share to stabilize and the export share to rise.

There's still a huge gap. It's going to take decades to close that gap, if it ever closes. We are making progress.

Let me stop there and turn things over to Mike.



MICHAEL L. MUSSA (Senior Fellow, Institute for International Economics): Well, good morning. I don't mind Nariman using a little of my time. If I was getting paid for this at least I could say I'm getting paid more per minute and possibly worth it.[2]

In fact, our forecasts, both for the U.S. economy and world economy, are very close. Looking forward to the remainder of this year and 2007, he's looking for 2.2 percent U.S. real GDP growth. I'm looking at 2.25, and the main reason for the difference is that I only do my forecast in quarter points. I don't believe you ever know how fast the GDP is growing more accurately than a quarter of a percentage point.

For the world economy, we have a similar view, although I rely on the IMF aggregation method using PPP [Purchasing Power Parity] exchange rates. I rely on it in part because I think it's better, but I rely on it mostly because I made the decision that's the way the IMF will do it.

Looking at the world economy in the decade of the nineties, world GDP growth on the IMF basis was right around 3.75 percent—sometimes a little above, sometimes a little below.

In 2001, we had what amounted to a global growth recession where the growth rate fell 2.5 percent at the world level and remained quite sluggish in 2002 when global growth was only 3 percent.

Since then, in 2003, 2004, 2005, pretty clearly in 2006, and I think still likely in 2007, we're looking at global growth that is certainly above the average of the 1990s and the 1980s.

The global economy grew 4 percent in 2003, 5.25 percent in 2004, and 4.75 percent last year, which reflects a little bit of a slowdown. We're going to come in right around 5 percent this year.

[2] Appendix B contains copies of the material that accompanied Michael Mussa's presentation.

Those would be the 4 strongest years of successive GDP growth since the early 1970s. For next year, I do expect a slowdown to about 4 percent global growth, with the industrial countries slowing from about 3 percent growth this year down to around 2 percent next year, and the developing countries slowing from around 7 percent growth this year to around 6 percent growth next year.

Nariman talked a good deal about the U.S. economy. Let me not focus on the United States, but look at what's happening in other industrial countries and then comment on developing countries.

There's a one-page handout with two sides to it, and I'm looking at the table on page 2, at the first substantive line for the United States [appendix B, table 2]. What we see is real GDP growth in the United States over the last 3 years after the recession in 2001 and sluggishness in the initial stages of the recovery. The U.S. economy has been growing at 3.75 percentage points on average for the past 3 years.

Domestic demand has grown a little bit more strongly and that has contributed to the further worsening of the current account position, which Nariman referred to.

A key point, however, is over the past 3 years the unemployment rate has come down from 6.1 to 4.7 percent. So we've been absorbing slack. Other measures of the slack, like capacity utilization and so forth, confirm that.

The U.S. economy has been growing more rapidly than its long-term potential growth rate. We've absorbed slack, and when that happens inflationary pressures do eventually tend to pick up, and we've been seeing some of that.

Looking again across the table, the inflation rate in the United States is clearly up over the past year, whether we look at overall headline inflation or if we look at what my friend Mike McCraken calls the "cold and hungry CPI," the core inflation rate, both of them have been moving up and have been running now at levels that the Federal Reserve rightly regards as uncomfortably high.

So we've had a significant tightening of Federal Reserve monetary policy beginning at a time when they anticipated that this removal of slack and rise of inflation would necessitate a significantly firm monetary policy, and that's a key reason why we're expecting now and seeing now evidence of a slowdown in the U.S. economy.



The Federal Reserve kept the housing sector booming. House values kept the consumer happy. Well, now it's less happiness in home building land and the consumer spending

growth is probably likely to slow, not turn negative overall, but slow. That's going to be the key factor slowing growth in the U.S. economy.

What about the rest of the industrial world? Well, the United Kingdom is a little bit of an outlier because the United Kingdom had barely any slowdown in its GDP growth in 2001 and 2002. They've now had almost 16 years of consecutive GDP expansion, and so their monetary policy has followed a slightly different course than most of the rest of the industrial world.

They began to tighten their monetary policy in 2002 and 2003, slowed the economy down in 2004 and 2005, eased back slightly, and then picked up a little bit of momentum recently.

The economies of essentially all of the other industrial countries that pursue independent monetary policies, with the euro area considered together as one region, have had experiences that are qualitatively similar to those of the United States, but generally lagging a little bit behind it in this episode of the cycle. Actually, Australia and Canada are probably a little bit ahead of United States, while Europe and Japan are lagging behind United States.

Let's look at the table again. Look at the euro area. Their growth over the past 3 years has picked up from 2 years before; however, they have managed barely more than 2 percent real GDP growth on average. Not stellar performance. Nevertheless over the past 3 years, the unemployment rate in the euro area has fallen by almost a percentage point. Two percent growth now appears to be stronger than the long-term potential growth rate of the euro area. While inflation in the euro area hasn't picked up much recently it has been running a little above the European Central Bank's objective of an overall inflation rate of a little below 2 percent.

So the European Central Bank began last December to tighten monetary policy, and that process is likely to continue at roughly 25 basis points per quarter so long as the euro area economy is growing at or above its long-term potential growth rate, which I would put at 1.5 to 1.75 percent. So I think we're looking at the euro area repo [repurchase agreement] rate reaching 4 percent by the spring of next year, possibly a little higher.

I think it's reasonable therefore to anticipate that euro area growth that has been running a little bit above long-term potential and is now likely to slow to about potential in 2007. So we can anticipate 2.25 to 2.50 percent growth in the euro area this year down to 1.75 percent next year.



We'll see some tightening of other policies in Germany and perhaps in Italy. We'll have to see about France. Other developments are likely to contribute to the factors that will slow growth, but in contrast to the United States., where growth is going to slow from 3.75 to 2.25 percent. In Euro-land I think that growth is going to slow about half a percentage point rather than 1.5 points.

Japan is a little harder to read at this stage. The Japanese economy has definitely recovered over the last 3 years from a decade of poor performance, turning in growth of 2.75 percent. Now, Japan at present has a declining population and a declining labor force. Productivity levels in Japanese manufacturing—although not more broadly across the Japanese economy—have already risen to the productivity levels of many manufacturing industries in the most advanced industrial countries. So there's not much left to the catch-up growth that Japan was able to enjoy for several decades after the end of the Second World War. The evidence suggests long-term potential growth in Japan is no greater than 2 percent and probably a little bit less. Inflation in Japan has moved up significantly over the past couple of years, but it was negative before and now it's slightly positive. So it's a little hard to say that inflation is a serious concern at present.

Certainly former Governor Hiyami's concern that Japan was about to launch itself into hyperinflation has remained unfulfilled in light of actual developments. Nevertheless, the Bank of Japan has begun to normalize its interest rate policy, moving its policy rate from effectively zero to about 25 basis points. They will probably move to tighten policy slightly further while retaining quite an accommodating stance on monetary policy.

Nevertheless, I would expect Japanese growth to slow next year from at least three-quarters of a percent above long-term potential down to about the potential level, mainly because I think the external sector is likely to contribute significantly less to Japanese growth as we see a slowdown of growth in the United States and in other key markets for Japanese exports. It's possible that domestic consumption in Japan could pick up to fill in the gap, and we get another year of better than 2 percent growth in Japan; but I don't think it can go on much longer at above 2 percent or Japan will push beyond the point at which inflation begins to rise more seriously.

Australia and Canada in the aggregate are relatively small for the world economy, but they're in a position not dissimilar from the United States. The Australians have pushed their unemployment rate down now to levels not seen in decades. Similarly, in Canada the unemployment rate has been pushed down to a multi-decade low. Central banks in both Canada and Australia have been responding to that situation by firming their monetary policies, and I think a slowing of growth in both of those economies down to their long-term potential growth rates, which are a little below 3 percent, is now the most likely outcome for 2007 and beyond.

So for the industrial countries other than the United States, I anticipate somewhat slower growth, but I don't see any reason at this stage to anticipate that growth rates are going to fall by as much as a percentage point.

Turning now to the developing countries, we can expect a slowing there too. China has been doing exceptionally well in recent years. Measured GDP growth has been over 10 percent and almost surely will be over 10 percent this year. In fact, 10.25 percent for 2006 is probably a little low at this stage. But the expansion in China does look unbalanced in two respects: First, the share of fixed investment in Chinese GDP has risen to an incredible 45 percent. In the United States, the analogous investment share is around 16 percent. The fixed investment share of Chinese GDP is the highest investment share seen in any significant economy at any time in recorded history. This very high investment ratio doesn't seem sustainable, especially when one looks at the Chinese marginal output capital ratio that is falling over time.

So investment growth at some point is going to need to slow to a level below GDP growth in order to lower the investment share. The other imbalance is the reverse of the U.S. situation. From 15 years ago until 2 years ago, the Chinese current account position generally fluctuated in modest surplus, with occasional small deficits, at around 2 percent of GDP, never above 3 percent of GDP.

Last year, the Chinese current account surplus was 7 percent of GDP. This year, based on a trade balance that has been much stronger for China through the first 8 months of the year, it looks like the Chinese current account surplus is headed for 9 percent of GDP.

This means that rising net exports have been a key driver of Chinese GDP growth over the past 2 years. I do not think that can continue very much longer.

We already see the Americans and the Europeans getting pretty fed up with this situation and to have another 2 percentage points of growth from net exports next year in China would mean pushing the current account surplus from 9 to 11 percent of GDP. One way or another, that's not going to happen. So I do anticipate slower growth in China, but not catastrophically so.

India, which has a big weight in the IMF measure of GDP, has had spectacularly good years of growth partly aided by good weather conditions and so forth. The Reserve Bank of India has become somewhat concerned about the deterioration of the current account position and the rise of inflation has been tightening monetary policy in India. I think it's likely India's GDP growth will slow next year.

Looking around at emerging Asia, the situation differs from country to country. Singapore had a very good year this year. Their experience probably

won't be quite so good next year, especially if there is a slowdown of their relatively high exports to the United States, Japan, and the rest of Asia.



Thailand looks like it's headed for and may stay awhile in an economical rough spot. South Korea's growth, which has been relatively sluggish, may pick up, especially if oil prices continue to decline. They are one of the economies in the world that has the highest dependency on imported oil. But, on balance, given weaker growth in the United States and in other industrial countries, and I think very likely in China as well, I expect the rest of emerging Asia to be a little slower next year rather than stronger.

A similar but slightly different story holds for Latin America. Slower growth in the United States will impact Mexico. It's hard to know how the continuing political controversy there will play out over time, but it's not a positive for the economy.

Brazil is the one Latin American country where I think growth might become a little bit stronger rather than a little bit weaker. But overall, I would still anticipate growth in Latin America to slow next year from the quite respectable 4.5 percent or so this year.

Then when we begin to look at central and Eastern Europe, again the growth story is mixed. We've been waiting for Hungary to collapse for the past couple of years, and it looks like they're doing it. How much of a contagion there will be to other central European countries remains to be seen. But if growth slows down a little in western Europe, then I would expect growth in central and eastern Europe to slow down a little as well.

I think the commodity exporting countries, which include Russia, the Middle East, and a number of African countries, have already seen the general peak in world commodity prices. As prices yield a little bit, I expect that growth will also be a little more restrained in those other parts of the world. Thus, overall, I think we are looking at a slowdown in global growth to around 4 percent by the IMF measure, with significant uncertainties around that central forecast.

Nariman and I are virtually bang on in terms of our forecasts for the United States and the world economies. You always need to ask, if two eminent economists are in such close accord, could they possibly be wrong? I leave it to your experience and good sense to find the answer to that question.

PANNULLO: Any questions?

STANLEY A. HOROWITZ (IDA): I'll try to keep my role as the designated first questioner. Mike, you referred a few times to the long-term potential growth rate for various countries. Could you say a few words about what you base that analysis on?



MUSSA: There are a number of ways in which economists estimate the long-term potential growth rate. I think none of them are all that reliable. One of these methods is to fit a flexible curve, a spline, to the past trend of actual GDP growth rate; this method eliminates the potential for cyclical fluctuation and assumes that whatever trend has existed in the past is going to continue in the future. A more sophisticated way to estimate the long-term potential growth rate based on a production function; if using this method, you need to ask: How rapidly do you expect employment to grow? How rapidly is the capital stock growing? What's happening to total factor of productivity? If the economy is absorbing slack, then it's growing more rapidly than long-term potential. Then you need to ask: What's the relationship to what we call Okun's law? What's the relationship between the extent to which you're absorbing slack and the extent to which you're growing more rapidly that long-term potential? Over the past 3 years, we have seen 3.75 percent annual economic growth in the United States while the unemployment rate fell half of a percent a year; this is powerful evidence that the potential growth rate is below 3.25, which was the estimate of potential growth during the 1990s.

That estimate now looks to be a little bit too high to me, partly because the labor force growth in the United States has been pretty sluggish in this decade.

Productivity growth fluctuates quarter to quarter and has held up pretty well in recent years. It looks to be about the same as it was from 1995 to 2000; however, considering slower labor force growth, we can expect the long-term potential growth rate for real U.S. GDP to be lower by a quarter of a percent or a little bit more.

I think similar considerations suggest long-term potential growth in Europe is surprisingly low, and in fact, below 2 percent. Given the shrinking labor force in Japan, it's not surprising that their potential GDP growth would be 2 percent or a little less.

ALINE QUESTER (CNA Corporation): I was interested in Nariman's comment that soft landings are relatively rare. I was wondering what both of your thoughts were on why this might be the case.

BEHRAVESH: If you look at what has happened in the past, just focusing for a moment on the United States, and this is perhaps an overstatement, in the past expansions have typically been killed off by the Fed. The Fed did too much too late. Essentially inflation got out of control and the Fed stepped on the brakes and down we went.

There are exceptions to that: oil shocks, for instance. The reason I'm relatively comfortable predicting a soft landing is that we don't have an oil shock happening right now. Inflation seems to be in check.

I don't think the Fed has overreacted, although there are some Fed governors who talk about overtightening. By most accepted measures of monetary policy, I really don't think credit is particularly tight. It's become tighter, but not particularly tight, and we certainly don't have an oil shock.

Could we have a housing shock? It's possible. We've never had a housing-led downturn. Dramatic downturns in housing have occurred, but the Fed has tightened and housing has gone down, but we never really had a true housing-led recession.

The good news, as I said, is you've got other sectors of the economy that are very strong. Probably one of the best pieces of news for the United States is how robust the corporate sector is, how healthy the corporate sector is.

We suggest that the adjustments this time around may not need to be as dramatic. Even last time around with a very dramatic corporate adjustment, we had the mildest downturn on record.

So all of that suggests that, yes, soft landings are rare, but it looks like we probably will get one this time.

MUSSA: Let me note that you spoke of the great moderation. Well, part of the great moderation over the past two decades, particularly in the United States, but also in other industrial countries, is that average GDP growth rates are a little lower than they were earlier in the post-war period. Mainly, however, the volatility GDP growth is down quite significantly. Indeed, in the United States, we're now in the eleventh expansion of the post-war period. The two immediate and preceding expansions (together with the long expansion of the sixties) were among the longest of the postwar era—about 8½ years in the case of the eighties expansion and almost 10 years in the case of the nineties expansion.

So it does appear that for whatever reason the economy has less of a tendency to fall into recession than it did earlier in the post-war period. I think part of the explanation for that is that central banks have become more adept at the management of monetary policy. I noted that the United Kingdom has had 16 years of continuous economic expansion and I think shrewd management of

policy by the Bank of England, which has had several mid-course corrections over that 16-year period, is an important reason for that.

More recently, the Reserve Bank of Australia tightened monetary policy in 2002 and 2003, slowing the economy down a bit, then eased a little bit, and is now tightening again. So they really had a mid-course correction. Bank of Canada did a similar trick.

I would say that the Federal Reserve's mid-course tightening in 1984 also helped to preserve the long expansion of the eighties. So I think that the driver has gotten a little more adept at driving the car.

Nevertheless, when the growth rate of the economy slows to around the numbers we're taking about, around 2 percent, the danger goes up that you'll hit a bump and fall into recession. So, normally, based on post-war experience weighing the relatively recent past somewhat more heavily, you would say that the probability of entering a recession in the next 12 months is around 12 to 15 percent. Well, given a weakness in the leading indicators and the apparent evidence of the economy slowing, particularly in housing, things are a little worse than normal. So, I would say the risk of entering a recession over the next 12 months is doubled or a little more than normal. So it's around 25 to 33 percent.

The Fed may have tightened too much. The housing downturn may be stronger than expected. There could be another upward spike in oil prices. There are a number of factors to consider. When you're growing only about 2 percent, it can tip you into recession; but I would still agree with Nariman that it's still a three-to-one bet or four-to-one bet that we'll get through 2007 without a recession starting.



CHARLES W. PERDUE (Government Accountability Office): I have a question for Nariman, regarding the chart on the great moderation, and considering inflation both for the United States and for other countries.

I was curious if you plotted the growth of the money supply. I realize there could be problems depending on one's definition of the money supply. Would there be a high correlation between money supply and the slow growth that's reflected in lower inflation rates?

BEHRAVESH: That's an interesting question. I think Mike alluded to it a little bit. Certainly after 2001, liquidity growth was very high in the world economy, led by the Fed and other central banks. Again, the surprise was that inflation didn't take off. Now, it still may take off; I'm open to that, but thus

far, it didn't. So there is a puzzle. There are all kinds of structural changes that occurred in the financial markets. There are a variety of reasons that you can put your finger on, but in the end, the expectation on the part of financial markets is that inflation isn't going to get out of control.

I personally would have thought inflation would be somewhat higher than it is now, and I've been a little bit of an inflation bear.

As you know, the bond markets are another interesting situation right now, not just in the United States. World wide bond yields have continued to do quite well. What's going on is that extra liquidity got absorbed elsewhere, in other asset markets. So, some of the relationships have shifted. It's not that they don't matter anymore, but they shifted.

So I would say looking just at global liquidity, that inflation predictions would have misled you, at least in the last 5 years.

I'm not saying the relationship has broken down. It has changed, I guess. This is thanks to globalization, competition, central bank credibility, and so on.

Mike, I know you wanted to weigh in on this.

MUSSA: Of course the European Central Bank under its chief economist, Otmar Issing, made an industry out of explaining how the relationship between money and nominal GDP was shifting for a variety of reasons.

I used to be a monetarist. In the United States, in the post-war period until about 1980, there was a very stable relationship between the growth rate of M2 [money supply] and the growth rate of nominal GDP, with money growth leading a year and a half or so over GDP growth. After 1980, however, that relationship really disappeared.

Velocity just began to behave strangely relative to anything we've seen before. Interest rate movements helped explain that, but monetary targeting really lost its attractiveness because the movements in velocity were so large and unpredictable. Foreign central banks, at least some of them, adhered to monetarism (at least rhetorically) for considerably longer than the Federal Reserve. But in many cases what central banks said they were doing did not characterize their actual behavior regarding adjustments of their policy interest rates. The Swiss National Bank finally gave up the monetarist ghost about 5 or 6 years ago. Today, I would not completely ignore what has been happening to the monetary aggregates, but it is not the primary measure of what is happening with monetary policy.

In the United States, the monetary growth rate has slowed very much over the last 12 months, particularly for the M1 [demand deposits plus currency in circulation], which measures the most liquid segments of money supply. But it is important to keep in mind the effect of the interest elasticity of velocity. In

the environment of rising interest rates, that velocity would increase if there is M1 growth. So, even a relatively sluggish rate of M1 could be associated with a fairly rapid rate of nominal GDP growth.

Nevertheless, I think the slowing of monetary growth in the United States is an indication that monetary policy has tightened, and there's a reason to believe that we're likely to see some slowdown in the economy; but from virtually zero growth of M1 money supply over the last year I wouldn't draw catastrophic implications.



JEFFREY F. WERLING (University of Maryland): When you were talking about recessions, you were implicitly thinking of a recession being negative GDP growth; but if our long-term potential growth rate is 3 percent with productivity at 2 percent and a post-industrial type of economy, wouldn't 1 percent growth over 12 months or so feel like a recession?

BEHRAVESH: Yes, I think 1 percent would feel pretty awful in specific areas. Housing is already in a recession. You could say other sectors, such as durable goods, may follow; but not every part of the economy will be in a recession. It would be one of these strange situations as we had in 2001, when parts of the economy, such as the manufacturing sector, then, were in recession but other parts of the economy continued to do well.

I think 1 percent will probably be more consistent with that kind of a dual-track economy where parts are doing very badly and parts are doing okay or better than okay.

MUSSA: Harry Truman famously defined an economic depression as when you yourself were unemployed and a recession as when your neighbor was. I think a 1 percent growth rate in GDP would certainly imply a rising unemployment rate. So, in this case, the margin of slack would certainly be rising.

Indeed, even a growth rate of 2 percent implies at least a modest increase in the margin of slack and a modest increase in the unemployment rate; but inflation in the United States, both overall and core, has been rising since the low point in 2003, and the indications are that we're operating a little above potential in terms of the level of output. If the inflation rate is going to come down, we need to generate additional slack in the U.S. economy.

The alternative is that we keep growing and potential slack remains about where it is; then inflationary pressures will continue to build, and the Fed will come in and tighten monetary policy. There's some danger of that just as there's some

danger that the Federal Reserve has already crunched too much. We may find that out over the next 6 months or so, depending on if the housing sector really goes down the tubes and that pulls down overall consumer spending along with it.

So the mid-course correction/soft landing issue was addressed earlier. Well, it's not a sure thing to be able to pull that off. When the growth rate slows a fair bit, there probably is some tendency for the famous multiplier affecting household income to make people more nervous. They cut back on consumer spending. That, in turn, affects business investment because there is less need to add capacity. This is more or less what happened in recent recessions. The economy slowed more than what was anticipated and then the dynamic of the inventory cycle and investment cycle took over, and we actually experienced negative growth for a while. As I said, there is a higher danger that will happen over the next year to 18 months than there has been for the past 4 years or so.

PANNULLO: Thank you, Dr. Behravesh and Dr. Mussa. We'll take a 10-minute break then reconvene.

[Recess]

MACROECONOMIC IMPLICATIONS FOR THE DOD BUDGET

J.D. Foster
Michael S. Lofgren

JERRY PANNULLO (Director, Economic and Manpower Analysis Division, OSD(PA&E)): This panel is about macroeconomic implications on the DOD budget. The first panelist is Dr. J.D. Foster, the Associate Director for Economic Policy at the Office of Management and Budget (OMB), where he oversees OMB's economic policy staff and advises the Director on developments in the economy and potential changes in economic policy. He also is the chief advisor to the Director of OMB on matters of tax policy and on the development of the economic forecast.



Prior to joining OMB, Dr. Foster was Senior Advisor for Economics at the Treasury Department's Office of Tax Policy. He was Legislative Director for Congressman Phillip Crane. Congressman Crane was Vice Chairman of the House Committee on Ways and Means. Dr. Foster was also the Executive Director and Chief Economist at the Tax Foundation and Chief of Staff to the Chairman of the President's Council of Economic Advisors.

Dr. Foster holds a Ph.D. in economics from Georgetown University, an MA in economics from Brown University, and a BA in economics and mathematics from the University of Colorado.

The second panelist, Mr. Mike Lofgren, is a budget analyst for Defense and Homeland Security for the majority staff of the Senate Budget Committee. Previously, he was a budget analyst for the House Budget Committee. He served as a staff member on the House Armed Services Committee's Readiness Subcommittee. He began his legislative branch career as a military legislative assistant to Congressman John Kasich in 1983.

Mr. Lofgren has both a BA and an MA in history from the University of Akron. He was awarded a scholarship to study European history at the University of Basel, Switzerland, and has completed the strategy and policy curriculum at the Naval War College.



J.D. FOSTER (Associate Director for Economic Policy, OMB): It's a pleasure to be with you this morning. A quick road map to start: I'm going to give a brief overview on the economy, then I'm going to talk a bit about the current state of the budget and our near-term budget forecast, and then I'll talk about some long-term budget pressures as they may impact defense spending. [3]

Let's start with the economy. As you know, we began with 4.2 percent real growth in the first half of the year. The good news, and I regard it as good news, is the economy is slowing to a more sustainable pace.

If you don't think that's good news imagine if we had continued at that rate. Yesterday we would have seen the Fed raise the Funds rate another quarter point in all certainty, and we would be wondering where they are going to stop. Instead, we're heading into a period in which we're getting as near to steady state as we can ever hope for in the macroeconomy.

As forecasters we look at the growth potential in our economy plus or minus a quarter of a percentage point, depending on the quarter we are in, but we also need to be cognizant of the fact that the fundamentals of the economy are very strong to keep us growing at that potential rate: low inflation, low interest rates, a labor market that is very flexible, and so forth. So we see our economy as facing headwinds, and that's normal, but we're in a good position to overcome those headwinds.

The headwind that we talked about in past months was energy.

The flavor of the month in terms of headwinds is housing. The housing sector is in trouble. Prices are going to fall a bit. If you're a stockholder in one of the large national companies that builds new homes, then you're probably not very happy right now. From a macroeconomic standpoint, however, there's really not too much of a concern at this point. I don't think the correction in housing is going to be that deep in terms of prices or quantities, or that long in duration. I believe the previous panelist mentioned a soft landing in housing. I agree with that assessment.

So let's move from the economy to budget issues. The first reason we care about the economy is that it tells us a lot about what to expect with respect to receipts. There is a very close correlation, as you would expect, between economic growth and receipts, but the volatility in receipts in recent years especially is much greater.

[3] Appendix C contains copies of the material that accompanied J.D. Foster's presentation.

In 2001, we saw receipts falling as the recession took hold. We cut taxes a little bit in 2001. It was a large tax bill over 10 years, but relatively little tax relief occurred in that year. So, almost all the decline in the absolute level of receipts that occurred in 2001 was due to the recession. The collapse in capital gains receipts received the bulk of the attention, but the drop in tax receipts was also due to a significant drop in the income earned by high-income earners, which is taxed much more heavily than is other labor income.

In 2002, we saw receipts plummet again. Again we cut taxes. Congress passed a tax cut bill directed at business investment, but even without that tax bill on top of the tax relief from the 2001 bill, we would have seen tax receipts fall fairly significantly in 2002. Again, the main culprits were the folks who previously made a lot of money in labor compensation, stock options, bonuses, and so forth. They had given us a lot of tax receipts in the late nineties. In 2002, that high-end income continued to evaporate. And as high-end income fell, receipts fell.

In 2003, same story: receipts fell again. We cut taxes again. And again, even without the tax cuts, receipts would have fallen. So we had a pretty significant decline in receipts for 3 years in a row.

Finally, we started getting some good news. In 2005, we had 14.5 percent receipt growth off of about 6.4 percent nominal GDP [gross domestic product] growth. This was significantly more revenue than we had forecast.



For 2006 we now expect above 11 percent growth in receipts compared to about 7 percent nominal GDP growth. We won't have the data for some years, but at this point I don't believe the explanation for this growth is a significant increase in capital gains tax receipts. Rather, I believe we are returning to the pattern we saw in the 1990s, when the economy was going well and the people that tend to make a lot of money were making a lot of money, especially those in the financial sector. That's extremely highly taxed income and it creates a situation where receipts growth is materially faster than GDP growth.

So we saw strong growth in receipts in 2005 and 2006, much stronger than we had forecast, even though our economic forecast was almost right on.

As part of the economic forecast we take into account where in the economy income is earned, and for this year our forecast for the share of income earned in the corporate sector was a bit low. But basically our economic forecast was accurate, and yet the receipts forecast was inaccurate. Why was this? The income was largely earned where we expected it as between corporations, sole

proprietorships, taxable labor, and non-taxable labor income. But the income was not earned by the people we expected to earn it. We expected some growth in the income shares of upper-income earners, but instead, apparently, we had especially rapid growth in the earnings of high-income individuals; these are people who are receiving a lot of incentive pay, bonuses, and so forth.

Looking forward to next year, our forecast in the Mid-Session Review released this past July was for just 2.4 percent receipts growth. That is the policy forecast that begins with a baseline receipts forecast of about 6 percent. Then we made some adjustments relating to identified sources of lost revenue growth. For example, we have the demise of the telephone excise tax, and we have to refund the previous 3 years' excise tax collections. That lowers next year's receipts growth significantly.

The Congress in May of this year extended the patch on the alternative minimum tax [AMT], but they extended a patch that was much more generous than had been previously in place. They didn't just extend a nominal dollar patch of about $13,000 for a married couple. They didn't extend a patch indexed for inflation. They indexed a patch of sufficient size so as to hold constant the number of AMT filers. Well, that's a lot more expensive and its effects are felt especially in 2007.

Also, the way the Congress enacted the patch in May of the current tax year, meant, according to our scores, that most of the revenue effect will not be felt in 2006. Rather, it will be felt in 2007 when the affected people file their taxes. So you have a modest growth in the baseline and then you subtract off these revenue hits and you end up with a fairly modest 2.4 percent receipt growth forecast for next year.

Looking forward, there's some important timing shifts in the pattern of receipts from year to year; you can see some gyrations in the graph. But the average for the 4 years after 2007 is about 6 percent. So we're tracking nominal GDP fairly closely in the forecast after 2007.

When you take all of that in, if you look at receipts over time you can see surging receipts in the 1990s. This surge in receipts produced a balanced budget and then a surplus. Then you see the collapse in receipts associated with the recession foremost, but also the tax cuts, and then our receipts forecast is for receipts to remain around the historical average of 18.2 percent of GDP.

There's a lot of movement from year to year, but it's remarkable how stable receipts have been as a share of GDP over the post-World War II period. Depending on when you start the calculation, whether in 1946, 1950, or 1951, the tax share is 18, 18.1, and 18.2 percent, respectively. Over long periods of time, the Federal Government for one reason or another has collected receipts equal to about 18.2 percent of GDP, and that's our forecast for receipts going forward.

This all feeds into the deficit picture. In February of 2004 the President's budget forecast a deficit for that year of $521 billion. Fiscal policy needs a goal to guide the political process, and it needs to be an obtainable goal. The President said the deficit needed to come down, and so he set a goal of cutting the deficit in half over 5 years from the level projected in February of 2004. That was his goal. That meant getting the deficit down to about $260 billion or 2.2 percent of GDP.

Of course, the pundits said it couldn't be done, and the opposition was quite convinced it couldn't be done. We forecast $521 billion in February of 2004, and we ended up at $413 billion. That's a fairly large improvement at $108 billion in about 8 months' time. The improvement was due in part to receipts growth of about 5.6 percent, not an especially large gain, but we weren't forecasting much receipt growth.

To our frustration, when we put the budget out in 2005, we forecast the deficit would rise again from $413 to $427 billion. Over the next 8 months we experienced the continued revenue surge I mentioned, and the deficit was down to $318 billion.

Another budget cycle comes along and, low and behold, we're forecasting the budget deficit to rise from $318 billion to $324 billion.

Fortunately, when we did the Mid-Session Review, which we are required by statute to produce in the middle of the year to update the fiscal policy picture, the budget deficit we had forecast for 2006 had come down to $296 billion, reflecting another revenue surge that we were forecasting would end up at about 11.4 percent. We were getting pretty close to the President's goal of cutting the deficit in half at that point.



Since then, receipts have been tracking almost exactly with our expectations, but outlays are now not going out as fast as we expected. The Medicare program is not growing as fast as we thought, and Medicaid is not growing as fast as we thought. One item of particular interest perhaps to this audience is that the DOD promised to spend a certain amount of money this year and they're not going to be able to do it. Somehow, surprisingly, the DOD can't spend all of the money we've given them. We're going to end up with a Budget deficit around the $260 to $270 billion range for this year. We'll know for sure in about 3 weeks.

So what we have is a situation in which we forecast the deficit for this year to be $423 billion. We'll end up in the $260 to $270 billion range, essentially hitting the President's goal not in 5 years but in 2 years; so much for "it can't be done."



Of course, we have to be forecasting an increase in next year's deficit; otherwise, we wouldn't maintain our pattern, and in the Mid-Session Review we are forecasting $339 billion for next year. For clarity, that includes all of the costs for the global war on terror including operations in Iraq and Afghanistan.

We've been accused of playing with the numbers, raising the budget deficit in February so we can forecast a decline in July. If you stop to think about it, that's not very intuitive. We operate in a political environment, and the accusation is essentially that we're playing politics with the numbers. But think about it—do people forecast bad news now so they can forecast good news later? No, they don't. In politics you like to have the good news now and hope the bad news doesn't happen. So their accusations are quite absurd on their face.

We would like to see a forecast with a nice steady decline in the Budget deficit, and after next year, we do have that as you can see in the graph; note that the 2008 figure again has the global war expenditures in it. So we see the budget deficit declining fairly steadily going forward.

From an economic standpoint the budget deficit is certainly in the range where we really don't have to worry about it too much. We'd like it to continue to come down. We'd like it to come on down further so we have some fiscal policy room in case we have another recession, but for the moment we're doing all right.

This is the further statement of the fact that we're doing all right: The debt-to-GDP ratio, which is the most important element in terms of the sustainability of the policies, is leveling off and then falling under our forecast. Our forecast, by the way, is similar to the Congressional Budget Office forecast. So this isn't a matter of the administration just being optimistic. There are other folks who do this work and they agree with our basic figures.

Now, this being a budget discussion, you have to have a pie chart for spending. That's one of the rules at OMB. This is the basic chart you're all familiar with. What I would draw your attention to is that the total of "mandatory spending" on Social Security, Medicare, Medicaid, and other "mandatory programs," which includes functions such as agriculture and veterans, is about 60 percent of all outlays, and the rest, including discretionary spending, is about 40 percent.

What's important here is that those ratios are the reverse of the historical ratios. The ratio of discretionary spending to mandatory spending used to

be two to three the other way. That shift of proportions from two to three, to three to two, is important because it's a harbinger of what we can expect going forward.

Well, I think with a stronger economy, stronger receipts, and declining budget deficit that's probably enough good news for an economics conference.

The implication for defense spending is that despite all of the wrangling over DOD appropriations and reset and global war on terror, we've got room in the budget for Defense spending to rise if that's what the decision is to be.

However, I would note that the Congressional Budget Office forecast for 2012 essentially has us at a balanced budget. We didn't do a 2012 forecast in the Mid-Session Review because we just forecast for 5 years. The Congressional Budget Office is required to produce a 10-year forecast.

When we release the budget this February we'll be forecasting 2012, and I suspect we'll be pretty close to balance that year. Why is that important? It's important because it's almost certain that political forces debate whether a balanced budget is the next fiscal policy goal. As I mentioned earlier, you have to have a fiscal policy goal to contain spending. A balanced budget may be the new goal for some, and that will create new pressures on the budget, and those pressures will filter down through to defense spending.

Whatever happens in the near term, the problems for the longer term are much more severe, particularly for defense planning when you take into account the resources that might be available. This is a chart you may have seen if you read the President's budget. This chart gives you a sense of the pressures that defense spending is going to be under in the long term. Let me explain what's going on here.

The graph is attempting to capture these budget pressures. Receipts are held in this graph at 18.2 percent of GDP, which, as I mentioned, is a fairly stable long-term trend. It's not the result of an economic force. This seems to be where the nation is most comfortable. Discretionary spending is assumed to grow with inflation, and the rest of spending is essentially put on autopilot. We take the growth of Medicare and Social Security and veteran's programs and using a long-range forecasting model we see the growth in these programs shown in the graph.

This graph tells us that in 2020 we're looking at large and rising budget deficits indefinitely. And by 2037, mandatory spending will have crowded out every dollar of spending elsewhere in the budget. This isn't going to happen, of course. We're not going to eliminate the Defense Department. We will have the usual domestic discretionary programs. But the graph gives you a sense of the pressures that are going to fall on the budget from the growth in entitlement programs, particularly

Medicare, but also Social Security, and that something needs to be done about them—and that something will be done. We may not know when and what, but something will change in these mandatory spending programs so this pattern doesn't come about. But the graph does give you the sense of the magnitudes involved regarding what will have to be done.

Let me give you a few numbers to put this in perspective. Our economy is about $13 trillion or so. The unfunded obligations, on a present value basis, of Social Security and Medicare, according to the actuaries, total about $84 trillion. We have an unfunded obligation in those two programs of about $84 trillion.

You can always attack the assumptions that go into this calculation and say they should have a different discount rate or a different health inflation growth rate. In fact, in generating those numbers the actuaries make the arbitrary assumption that the health inflation will slow to match regular inflation. Why do they make this assumption? Because health inflation has to someday grow no faster than general inflation. That's not a very compelling reason in a sense, but it's true. Health care inflation does have to slow down, and for their part the actuaries have to make that assumption or they can't make the calculation.

So you can quibble a lot about the details of the numbers. You can't quibble about the general magnitude. It's a lot of money. It's far greater than the size of our economy today. It's far greater then our publicly held debt today.

So as we're arguing whether the deficit is $250 or $300 or $350 billion, or whether it should be little higher or lower, this unfunded obligation will grow this year by something on the order of $4 trillion. We need to concentrate more on getting the unfunded obligations down and under control and less on the immediate cash flow issues.

Let me show you one more chart. This is something we've been working on and trying to get across, particularly to defense audiences. You're the first folks in the public to ever see this, and you'll probably tell me we should put this one away, but I want to give it a try because I think this is interesting.

What this is trying to do is tell a story. The left-most bar chart shows what total outlays would be today if we didn't have all of the hurricane spending and the global war on terror. In that case, spending would total 19.8 percent of GDP, and stacked from bottom to top you have Social Security at 4.2 percent, Medicare at 2.5, and so on, with defense spending nestled there in the middle at about 3.6 percent of GDP.

Imagine that we put policy on autopilot. In 2031, then, outlays would hit 21 percent of GDP; Social Security would have risen to 5.8 percent of GDP; and defense discretionary spending would be 2.9 percent of GDP. In real terms, that is equal to current year defense spending of 3.8 percent of GDP. The economy would be larger because of real growth and so discretionary spending

would be a smaller share of GDP, but in real terms you'd be buying the same amount of defense services. So that's what 2031 looks like on autopilot.

Let's suppose instead that in 2031 we insisted that in the aggregate Federal spending should look a lot like what it looks like today with all of the spending that we do with Katrina and the global war on terror and so forth. Your outlays are then 20.6 percent of GDP. Let's suppose as well that the historical relationship continues and that receipts remain at 18.2 percent of GDP. What you will have then is on the right-most bar. Assumed here is that Social Security, Medicare, and Medicaid would grow on autopilot, that the Federal Government would pay its interest obligations, and that all of the other mandatory and discretionary spending is squeezed down proportionately so that total outlays hit 20.6 percent of GDP. What you see in the graph then will give you a sense of the pressures that are going to be emanating out of the entitlement programs and will be pressing down on defense spending in the future.

Defense spending here drops from 2.9 percent to 1.8 percent of GDP, a drop of 1.1 percentage points. That's about $150 billion in today's terms. So the pressure, if you will, from the entitlement programs on long-term defense spending equates to about $150 billion out of today's defense budget.

That's important to give you a sense of these pressures, and I raise this entitlement issue to a group focused more on defense for three reasons. First, as a chief economist at OMB I believe I have a responsibility to talk about entitlement programs on every occasion. Second, in terms of defense spending, you need to be aware, as you do your long-term planning, of the kind of pressures that the defense budget is going to be under. It's going to be a tough budgetary environment. Our near-term budget posture is okay; getting past that, we have a serious problem.

And, third, as people who can understand these issues, frankly, I'm trying to enlist you in this debate. This is not something the American political system wants to handle; it's not something the American people want to hear or necessarily understand all of the time, and they hear a lot of conflicting opinions about it.

You will always have those who say "no problem, no problem at all" with these programs. That's a lie, a simple flat lie. And so we need—the country needs—people like you who are knowledgeable and capable to stand up and talk about it.

The word has to get out. I will do my part. The country needs you to do your part. So, the good news is the economy is strong. The fiscal picture is sound. The bad news is we have a big problem ahead and we have to work together to try to fix it.



MICHAEL S. LOFGREN: After that optimistic little announcement there I think I'll continue to depress you and set the stage for later speakers who are going to talk in greater detail about specific parts of the defense budget, I'm first going to give you an overview of the arena I work in, in which the defense budget is established, the congressional budget process. I'm just taking the advice of talking about what you know. [4]

Then I'm going to talk in a summary fashion about some of the defense budget trends that are noteworthy or potentially alarming, depending on your point of view.

Everyone knows that the budget season starts with the President's budget arriving on Capitol Hill at the end of January. And what you see in the slide here, of course, [is that] that's an illusion. It begins many months before as the Federal agencies do what a lot of you do, they lobby.

They lobby in the sense of going through an iterative process of persuasion to obtain the results they want. In this case, they lobby the gentleman here to my right, who represents the Office of Management and Budget.

Formulation of the budget usually begins approximately 10 months before the President submits his budget to Congress and about 18 months before the start of the fiscal year.

During the early stages of the budget's formulation, Federal agencies perform their budget requests following their own procedures. OMB plays a coordinating role in this process and provides policy guidelines through circulars, bulletins, and the like.

Agency budget requests are submitted to OMB early in September. These requests are reviewed by OMB, and the agencies are notified of the OMB director's decisions with a so-called pass-back, which causes a lot of anxiety in agencies.

Agencies can appeal these recommendations to the director and, in some cases, directly to the President. Once the final decision on the budget request is made by the President, agencies revise their budget requests accordingly, usually in a downward direction, and prepare supporting material for inclusion in the President's budget submission.

The President's budget is then compiled and submitted to Congress. The congressional part of the budget process consists of consideration and adoption of spending, revenue, and debt limit legislation within the framework of an annual concurrent resolution on the budget.

[4] Appendix D contains copies of the material that accompanied Michael Lofgren's presentation.

Under the Congressional Budget Act, the House and Senate budget committees develop the budget resolution with the assistance of the nonpartisan Congressional Budget Office.

Congress begins its budget process once the President submits his budget. Congress is not bound by the President's budget, and through its budget process may adopt budgetary legislation reflecting far different priorities than the President's, which can cause a good deal of dismay on his end of the avenue.

The budget resolution, the center of the congressional budget process, sets forth aggregate spending and revenue levels and functional levels of spending for the upcoming fiscal year and at least the following 4 fiscal years.

As a concurrent resolution, it's not presented to the President for his signature and, therefore, does not become law, which is something that people tend not to understand. As you will note on the right-hand part of this slide, the President does not sign or veto the measure as he would for any bill that would become public law.

The budget resolution is more properly considered an internal congressional framework for budgeting. By setting forth a comprehensive statement of congressional priorities on budget matters, the budget resolution provides a guide for subsequent legislative action.

The House and Senate consider budget resolutions under expedited procedures. The Budget Act sets April 15 as a target date for completion of the annual budget resolution, and it's probably a rare occasion when we meet that target date.

No spending, revenue, or debt limit legislation for the upcoming fiscal year may be considered before a budget resolution has been adopted, unless a waiver of rules is obtained.

This whole process I've described sets into motion the subsequent action on appropriation bills.

Now we'll skip the whole reconciliation part because it's not really relevant to defense, and it would require another 3 hours.

Slightly less than 40 percent of all Federal spending is considered discretionary, and that's the spending that is provided through annual appropriations. That process deserves a look because from the standpoint of your interests, that's where about 100 percent of the defense budget is funded, or close to it.

The House and Senate Appropriation Committees have jurisdiction over appropriations measures. What have historically been 13 subcommittees of each appropriation committee were responsible for one of the regular appropriations acts. Last year, predictably, each house

reorganized its appropriation subcommittee so there are no longer an equal number of subcommittees.

As you can see, the House now has 10 subcommittees producing 11 bills, and the Senate, 12 committees with 12 bills. Needless to say, Congress is becoming complex and confusing, and if I were a cynic, I would say that's just the way the appropriators like it. They like opacity.

If the regular appropriations acts are not completed by October 1, Congress must adopt a continuing resolution providing stop-gap funding.

As you may know, continuing resolutions in October become the annual ritual in Washington. They're eventually followed by an appropriation bill, which contains the accounts of all of the bills that haven't yet passed.

Now coming back to the specifics of what you are interested in. The budget committees do not dictate what the Defense appropriations bill level is, let alone the size or content of the individual accountants.

What we do is provide a lump sum for all discretionary spending for the fiscal year. The appropriations committee may divide that lump sum among its subcommittee any way it sees fit, provided it doesn't exceed the aggregate level established in the budget. It is, of course, constrained by political considerations where it must eventually produce bills that Congress will pass and the President will sign.

Therefore in the appropriations process, the top-line spending of every bill, Interior, D.C., you name it, limits the spending of every other appropriation bill such as Defense. This balancing process sets an upper bound at the level of spending on defense appropriations.

Other factors outside the appropriations process may limit that in the future as well. Virtually all defense spending is funded in the roughly 39 percent of Government spending that is discretionary.

That slide looks familiar. I think mine is a little better than J.D. [Foster]'s because I have three significant digits. Precision is everything as the slide shows. The other 61 percent of the Federal budget is what he was complaining about. They are basically income transfers, and those segments of the budget are growing even faster than discretionary spending, and they can have serious fiscal consequences for this country.

Since January 2001, the Federal budget has experienced a swing of more than $7 trillion in the 10-year fiscal balance forecast. It has gone from a 10-year forecast of a $5.6 trillion surplus to a 10-year forecast of a $1.8 trillion deficit for 2007 to 2016. The latter forecast is artificially low because in 2011 the tax cuts expire by law.

As every Federal Reserve chairman says every time he testifies on Capitol Hill, annual deficits in the $300 to $500 billion range can be sustained in the short term for necessary purposes such as prosecuting a war or for economic stimulus, but not indefinitely.

It's been conventional wisdom, and I think most people will agree here, that Defense in the last 5 years has gotten pretty much what it wants, and will, to some degree, do so in the near future.

Since 2001, the DOD's budget has increased an average of 11.1 percent each year, including supplemental spending. And the question here is: Can that continue? The administration plans for a top-line DOD budget increase that's growing only by about 3.4 percent annually between 2007 and 2011. We have to ask ourselves, whether that is feasible or plausible given the underlying trends in military spending.

Later speakers will discuss [these trends] in more detail, but a big cost driver is personnel costs. It's to be expected that personnel-intensive military operations overseas are likely to cause a sharp increase in spending on Personnel and Operations and Maintenance, and that's exactly what's happened.

According to OMB's historical tables, one of the most useful volumes in the Federal Government, budget authority for military personnel rose from $84 billion in 2001 to $121 billion in 2005 in constant dollar terms. That's a 45 percent real increase in salaries and benefits going to military personnel.

While some think much of this increase is purely due to the emergency nature of the war in Iraq, spending in military personnel accounts may actually show very little moderation in the future since compensation directly related to Iraq and Afghanistan, such as eminent danger pay, is a relatively minor component of the budget, whereas recruitment and retention bonuses and other special pay and benefits, which have significantly increased since 2001, may be politically difficult to scale back even in the absence of a war.

At the same time, both the Chief Executive and the Congress generally find it politically expedient or necessary to offer across-the-board military pay raises, and I would expect that to continue.

Budget authority for Operations and Maintenance has increased from $127 to $179 billion—both of those measured in 2005 constant dollars—meaning that real resources for OMB have increased by 41 percent over the same period.

Another component of OMB that we're probably going to hear about is DOD health care, which is growing rapidly. According to a September 2003 CBO study, "Adjusted for the overall rate of inflation in the U.S. economy, the department's annual spending on medical care almost doubled from 1988 to

2003, rising from $14.6 billion to $27.2 billion. Furthermore, because DOD cut the size of the active-duty force by 38 percent over the same period, medical spending per active duty troop nearly tripled, rising from $6,600 to $19,600." [5]

In October of 2005, CBO updated that same study and now projects medical costs growing by the year 2024 to an inflation-adjusted $66 billion or perhaps to almost $80 billion if the DOD can't limit medical inflation as much as it hopes to.

Fuel is another factor that another speaker is going to discuss today. That's a growing element in the DOD's budget. In 2005, the DOD spent about $10.1 billion on motor fuel, more than the combined military budgets of Iran and North Korea.

One cost driver not scheduled to be discussed here today is defense acquisition, and that's why I'm going to discuss it. Recently, I came to understand that somebody actually does read and compare DOD Selected Acquisition Reports, the so-called SARs, over time, starting with the most recent one then available, dated December 31, 2005.

It provided data for 85 major weapons programs totaling $1.585 trillion in combined R&D [Research and Development] and procurement. I compared it to the SAR of September 2001, the last SAR to reflect pre-9/11 acquisition. It reported 71 programs totaling $790 billion.

In other words, in only 4 years, the Defense Department's total cost of major acquisition programs doubled. That's a rather stunning figure that is hardly ever talked about in the current debate over the defense budget and the implications of all of this.

What it means is that the O&M [Operations and Maintenance]/Personnel trend that we discussed before will likely still be in place even as the newest generation of weapon systems, such as the Joint Strike Fighter, the Future Combat System—which, by the way, has a total program cost in then-year dollars of $164 billion—and the DDG-1000 destroyer, reach full production at the end of the decade. CBO estimates that the DOD's current plans might require an annual appropriation over the 2012 to 2024 period that are 18 to 34 percent more in real terms than the amount appropriated in 2006.

In other words, the DOD's spending may be rising at a level far higher than the DOD now projects because of unrealistically optimistic assumptions. This is expected just at the time when the baby boomers will be retiring en masse and drawing Social Security and Medicare.

At the same time, I wouldn't bet that most of the tax cuts won't be extended; thus, we will be faced with deficits far in excess of official administration or CBO projections. If the deficit is not brought under control, there will be really painful real world consequences, such as the sudden rise in interest rates or an unsustainable drop in the dollar.

[5] Congressional Budget Office, "A CBO Study: Growth in Medical Spending by the Department of Defense," September 2003.

Given the way that the growth in defense spending has coincided with a large deficit, and how this circumstance replicated our experience 20 years ago, I would not be surprised to see new calls for restraint based on the potential fiscal insustainability of the present course.

Some of this debate has already started albeit on a subject that I've hardly touched on at this point, namely, how the Pentagon budgets for the global war on terrorism.

In contrast to Korea, where 77 percent of the expenditures were made in the regular budget, and Vietnam, where 72 percent of the cost was paid for in the regular budget, well over 90 percent of the cost of the present war has been paid for through supplemental funds outside the normal budget process.

If indeed the present war is a generational challenge, or a long war, or a war that will not end in our lifetime, shouldn't it be part of the regular budget?

My boss, the chairman of the Senate Budget Committee, Senator Judd Gregg, certainly thinks so. Just last month, he had the following to say:

> What evolved here is a process where essentially we have a core defense budget on which we have overlaid an entirely separate appropriation process and a budget called emergency appropriations, and we have now had 4 years of experience in this, and we are averaging about $90 billion a year of emergency appropriations, which are outside the basic budget process. For the first 2 years of this effort, the Defense Department refused to send up any estimate at all relative to what this would cost, and that didn't make a lot of sense, because we knew we were going to have the soldiers in the field. We knew we were going to have to pay something. So one could presume we had a cost on that. But I would like to have some more confidence than I have right now that we haven't set up a two-track budget process.

All these trends—rapidly growing major elements in the regular budget plus supplemental costs averaging $90 billion per year—mean that we are spending on defense, in constant dollars, far above that of the cold war and above even the peaks of the Korean and Vietnam wars.

We now spend an amount equal to the next 39 nations' defense expenditures combined. Given the defense budget since 1945 when placed on a graph looks roughly like a sign wave, as you can see there, I would not be surprised if history repeats itself later in this decade or early in the next.

Fiscal solvency, like military power itself, is an element of national power. When the current $8.6 trillion in gross Federal debt grows to its projected $12 trillion in 2011, or perhaps more if pessimistic projections are realized, perhaps then there will be a more solid consensus that fiscal health is a national security concern.

I hope I'm not stealing the thunder of another speaker today who will talk to you later, but I can't help but quote what the comptroller general, David Walker, said at the Senate Budget Committee earlier this year. He said "continuing on this unsustainable fiscal path will gradually erode, if not

suddenly damage, our economy, our standard of living, and ultimately, our national security." Thank you.

FOSTER: Any questions?



CHARLES W. PERDUE (Government Accountability Office): I have a question for Dr. Foster. It's going to be a two-part question that deals with the alternative minimum tax. You showed us figures indicating that revenues increased for 2004 and 2005, I was wondering to what degree the alternative minimum tax played in that. The second part of my question is: What are your thoughts on addressing the alternative minimum tax issue? From what I've read, each year more and more people will be affected by it unless something is done. You mentioned the patch.

FOSTER: Well, the number of fellow AMT payers is growing. The AMT did pick up additional revenue and more folks were paying it in 2004 and 2005. So that was responsible for some of the growth in receipts, but actually not any of the surprise in the growth receipts.

Going forward, even if we continue extending the patch, about every 2 to 2½ years another million taxpayers will join you as AMT filers.

What to do about the AMT? AMT frankly is so expensive at this point that in a few years—I'm not quite sure exactly what year, let's say 2011—the amount of individual income tax collected from AMT filers will exceed the amount of income tax collected from non-AMT income tax filers. It's hard to wave a wand and have the AMT go away under those circumstances.

Over the next 10 years I believe the AMT will collect about $1.3 trillion. So it's a large and growing problem. Back in the 1990s, Chairman Archer of the Ways and Means Committee saw this coming and tried to get people to pay attention to it and to correct it at that time, which would have been relatively inexpensive and not very painful.

The AMT is of such a size now that you can continue patching it for a while, but the patches start growing in cost from $30 billion a year to $40 billion a year to $100 billion a year. Those become fairly large tax bills even on the basis of one-year patches at a time. So I think you end up having to look at reforming the AMT in a fairly fundamental way. Whether you continue patching it or you do not, it is going to drive you to a fundamental reform of the tax system because you're moving so much revenue around you have to have more pieces in place.

Actually we already have a tax reform train wreck just over the horizon, which we can foresee with great certainty. Unless something surprising happens and the President and the Congress can come to a meeting of the minds on the permanence of the President's tax cuts, then in 2009 or early 2010 we're going to have the mother of all tax bills. All of these tax cuts that the President has proposed and the Congress has enacted that expire are going to necessitate an enormous tax bill. Members of the Congress think most of these tax cuts should be extended, and most of them that should be extended certainly correspond to most of the revenue involved. So there's going to be an enormous tax bill in 2009. That's probably when the AMT will be addressed along with the extension of many of the other tax provisions. That's going to be a big fight. It depends on a lot of things, but we know there's going to be a huge tax bill. We know the AMT itself is driving us to a huge tax bill, and when you put the two together, well, mark your calendar.



DAVID TRYBULA (U.S. Army): This question is for both of you gentlemen. If you look at Senator McCain's annual release or POGO's [Project on Government Oversight's] Web site, you see a growth in the number and the total dollar amount of congressional additions for things that the Defense Department hasn't at least explicitly asked for and in some cases may not want. Some would consider that as additional pressure on the Department, [in the sense that it then] has to figure out how to spend [this additional money].

As you see discretionary spending shrinking, will that [effect] continue to grow or will it be at what you would consider a nuisance level and not really a major factor?

FOSTER: I like that expression, "nuisance level." These earmarks are not new. They've been around for a long time. But in the past, Congress has shown a little bit of discipline and did not allow them to nearly take over certain budgets, and the DOD is a good example. The amount of resources that, because of these earmarks, is not available for the things the Secretary thinks need to be done is large and growing.

There is a counter-push now. But I don't think it has enough momentum to materially change the aggregate amount of these earmarks yet. The Congress is trying to pass a rules change under which the earmarks would become public along with their respective sponsors. Congressman Jeff Flake has pointed out that that's an effective deterrent only if there's shame associated with them.

Having worked for three senators and a congressman, all of whom were of a fairly conservative bent, the simple fact is when you get one of these grants

the first thing you do is send out a press release. So the transparency is good. It's a good first step, but I'm not sure it's going to change matters much.

Earmarks are a real problem. But there is a tension here. I'm going to speak up for the legislative branch for a moment here—the administration puts out a budget indicating where and how we think the money should be spent after lengthy internal debates.

The Congress is an equal branch of Government and members of the Congress have certain expertise and opinions, and they should not be precluded entirely from expressing those in the manner available to them, which in this case is through earmarks.

So I think you want to get it down to a nuisance level and I'm not going to try to define what that is except it's much lower than where we are. They have this right under the Constitution and they should exercise it, but I think they should exercise it with a much higher degree of responsibility than they do know. It is a serious problem, not just for the DOD, but for most of the departments.



LOFGREN: I think I'll try to define "nuisance level." Ten or 15 years ago, earmarks were in the $1 to $5 million range. Now they're getting up to $50 and $100 million a piece. It's really gotten out of control in the last 2 or 3 years.

And another problem may be defining [what falls into] each spending category. [What] is defense? Is breast cancer research an appropriate item for the defense bill? Why isn't it in the HHS [Health and Human Services] budget? That's one aspect where Congress is thoroughly to blame.

Another aspect is once the Secretary submits his budget, OMB reviews it, and then the President puts his seal of approval on it. Afterwards, later on in the fiscal year, guess who comes running through the back door to Congress? Program managers, base commanders, service chiefs, even, with their own little wish lists. Now, are those requests earmarks once they get into the budget? They're certainly out of the regular budget process.

[Recess for lunch]

LUNCHEON SPEAKER

Martin S. Feldstein



LARRY D. WELCH (President, IDA): I have the pleasure of introducing the luncheon speaker. I need not and will not describe the very long list of activities, honors, publications, and positions that characterize the more than 40-year career of Dr. Martin Feldstein in the field of economics. Were I to do so, we would have to serve you dinner as well as lunch.

But I do think it's important to point out that Dr. Feldstein's thinking, writing, teaching, leading in the field of economics has had an enormous influence on events, on concepts, and on people. I'd particularly like to mention the impact on some of the people who were his students because now we find that former students of Dr. Feldstein include a president of Harvard, a secretary of the Treasury, chairman of the President's Council on Economic Advisors, dean of the Kennedy School, and dean of the Columbia School of Business, just to name a few.



The good news is he remains highly active, is the President and CEO of the National Bureau of Economic Research and, of course, a professor of economics at Harvard University. We'll continue to benefit from his thinking, his writing, his teaching, and that's good news for the country.

MARTIN S. FELDSTEIN (President and CEO, National Bureau of Economic Research): Thank you very much, General. I'm really very pleased to be here and to participate in this meeting. I enjoyed listening to the speakers this morning and I look forward to your questions and comments after I finish speaking.

I have been interested for several years now in trying to increase the number of academic economists working on issues of national security. To fill this serious gap in the economics profession and in our nation's analytic capability, I have organized a graduate seminar at Harvard devoted to the economics of national security, I have started a working group at the National



Bureau of Economic Research on national security, and I've organized and chaired sessions at the annual American Economic Association meetings on that subject.

On each occasion I say I think that the economics of national security is the most neglected important subject in economics and the most important neglected subject in economics. I think we're beginning to make some progress in getting more academic economists around the country interested in the subject. I think that's a very good thing.

Today I want to talk about the outlook for the defense budget in the context of the macroeconomic environment and the implications of that for national security.

I am, frankly, very concerned about the size of the defense budget and its implications for our nation's ability to protect our security at home and to deal with our enemies abroad. As you know, defense outlays in the current fiscal year will be about $525 billion. This is far more than any other nation, as you heard earlier. It's more than the next 40 nations put together.

But is it really adequate for the task that faces the U.S. defense establishment today and that it's going to face in the years ahead? I think the answer to that question is "probably no." With something as critical as national security, even a "probably yes" isn't good enough. I think we have to have a good margin of safety in our defense capability.

It's useful to put our current spending in historic perspective and to see how it has evolved. My description of that would be rather different from the one that we saw in the last panel. I want to do it not in terms of dollars, which is a strange way to compare things over long periods of time, but in terms of percentages of GDP [gross domestic product]. Right now, defense spending is almost exactly 4 percent of GDP, but that includes the funds for the operation in Afghanistan and Iraq. Without that, defense outlays now would be just about 3 percent of GDP. How does that compare to where we've been in the past?

Back in 1962, before the Vietnam war, defense spending was 9.3 percent of GDP. So it was more than three times today's spending outside of Afghanistan and Iraq. By 1980 that 9.3 percent had been cut to just 4.9 percent to make room for the growth of the social programs that hadn't existed in 1962. Then President Reagan—whom I had the privilege of serving as the Chairman of the Council of Economic Advisors—increased defense spending very rapidly. He raised it to about 7 percent of GDP by 1986. I think that new military strength helped us to bring about the collapse of the Soviet Union.

That led, though, in the 1990s to the so-called "peace dividend" in which defense spending fell to just 3 percent of GDP by the year 2000. And that's where we are today: 3 percent of GDP, except for the spending on Afghanistan and Iraq.

So the big question is: Is that enough for defense in this post-Soviet Union age? I don't think so.

It's certainly true that modern weapons have much greater accuracy, much greater lethality than the weapons of 1960 or 1980. But the enemies we face today and the circumstances in which we fight are also very different.

It's worth remembering that President Eisenhower decided on a strategy to give a major role to nuclear weapons as a deterrent because he concluded that a large enough conventional Army to deter the Soviet Union would simply be too expensive. That strategy worked. It kept the Soviet Union out of western Europe and away from the United States. But nuclear weapons can be only a very small part of our current military strategy. The traditional weapons that have become so much better in recent years do have a role to play, but they are certainly not sufficient for the current environment.

This is especially true of the urban warfare of the type we're facing in Iraq and that Israel recently faced in Lebanon. That warfare requires more men and a different type of sophisticated equipment.

We've also learned that NATO may not be much more than a symbolic help.

The other countries in NATO don't feel the sense of commitment or responsibility that they did when the Soviet Union was a military threat on their doorsteps. Their spending on social programs has increased non-defense U.S. Government outlays to nearly 50 percent of GDP in many of those countries, making greater spending on defense very difficult for them to finance.

Much of the European defense programs seem to me to be much more focused on creating jobs in the local economy than on contributing to national defense. So the United States now has to bear the burden of a new kind of conflict without significant help from others.

Indeed, we face not just a new type of conflict, but three new different challenges. First, an increasing number of relatively small regional powers that can or soon will be able to deliver nuclear weapons and other weapons of mass destruction. Second, the non-state terrorist networks, and third independent terrorists.

The terrorists networks, the al-Qaeda jihadists, have a dream, a vision, a goal of world expansion that is probably intellectually and emotionally more powerful than the Communist ideology of the old Soviet Union. Independent

terrorists like those who struck the subways of Madrid and London seem more motivated by hate and by anti-Americanism than by any such global vision. Dealing with these diverse enemies requires an enormous increase in intelligence activity, much of which is funded as part of the defense budget.

In addition to these new threats, there remains the risk that in the longer run we may again face major states with substantial armies, navies, and air forces that can fight both conventional and nuclear wars. Russia still has a very large number of nuclear ICBMs [intercontinental ballistic missiles], and China is now beginning to produce similar weapons that could reach the United States.



Today's tasks require more manpower and a different mix of manpower than we have in our armed services. The major role of the Reserves and the National Guard that was appropriate for the military task of a cold war is in my judgment no longer appropriate when we face long periods of active combat. The regular Army is not getting the rotations that they need. The National Guard and the Reserve forces have been called on to serve for long periods in Iraq, indeed, in some cases, to serve for more than one tour of duty. It's not going to be possible to attract civilians to the National Guard when they face the prospects of that kind of service in the future. Nor is it appropriate in my judgment to disrupt the civilian economy in this way going forward.

The manpower of the future will, therefore, require larger numbers of active armed forces while the National Guard is trained to play a significant domestic role in homeland security incidents. A substantial increase in the size of the regular armed forces, an expansion of the National Guard to deal with domestic terrorism, and a much larger intelligence community to collect and analyze information will require a substantial increase in compensation levels and in the overall budget for personnel. It's very worrying, therefore, to read that the Navy and Air Force are instead planning major manpower reductions in order to free up funds for equipment and maintenance.

An increased budget will also be needed to modernize military equipment and to make them more suitable to the rapid deployment and other requirements of the new challenges. I've been shocked and dismayed to learn about the age of our weapon systems and about their inappropriateness for many of the tasks at hand. The difficulty in modernizing these weapon systems is an indication, I think, of the inadequacy of the equipment budgets.

The experience with the Army's Future Combat System (that we heard about earlier today) is a good illustration. The basic idea of an integrated system of modern high-tech weapons that can be rapidly deployed is generally accepted as an appropriate shift for the Army. I take the Army's decision to make this its major modernization strategy as evidence of its importance. I, therefore, find the delays and uncertainties in implementing this strategy a source of great concern.

The idea for the Future Combat System was first proposed by General Eric Shinseki back in 1999 with the notion that this system of eighteen integrated weapons would begin production in 2006 and begin fielding in 2008. Well, here we are in 2006, and production has yet to begin. Moreover, according to the Congressional Budget Office, it's now estimated that the first such brigade won't be deployed until 2014 and the full transition of the Army's combat units won't be completed until 2035.

I cannot understand a decision to wait 30 years to fully implement today's best technology. I wonder how many better ideas will come along and how different our military challenges will be by then. Will we miss out on what we need over the next decade and then have the wrong equipment for the more distant future? In other words, will we have, in the more distant future, equipment designed in the beginning of this decade that is the wrong equipment for the military challenge of the mid-twenty-first century?

I'm amazed that it can take so long to produce a weapon system. I've never tried producing a weapon system, but nevertheless the time between now and the first deployment is more than the entire duration of World War II. Why were we then able to mobilize vastly more resources in such a shorter period of time?

As an economist, I'm also amazed that there is concern among various analysts that this modernization is projected to cost $10 billion a year in today's dollars. There is so much concern that the focus of a recent study by the Congressional Budget Office of the Future Combat System focuses on alternative lower cost options. Recall that $10 billion is less than 2 percent of today's defense budget, and since that budget is only 4 percent of GDP, we're talking about modernizing the Army at an annual cost of less than 1/10th of 1 percent of GDP.

I would have expected to read an analysis of how additional spending could accelerate the deployment but that may be because I have spent much of my time in recent years thinking about the Social Security and Medicare programs that now cost more than $900 billion a year. So I find it hard to think of $10 billion for annual Army modernization as a big price tag.

In short, I think that an important goal of defense policy should be to increase the fraction of GDP going to our national security needs. In saying

that, I don't underestimate the political difficulty of getting that increase. It will take political leadership from a President who recognizes the importance of national security and the role of defense resources in achieving that goal. It will take strong political leadership indeed to overcome the economic headwinds that will otherwise limit and depress defense spending.

There are three such forces impeding the rise in defense spending: first, a slower growth of GDP; second, the consequences of shrinking our trade deficit; and, third, the effect of population aging on the Government budget that was spoken about at the beginning of today's session . I'll comment on each of these to indicate the magnitude of the problem, its duration, and what, if anything, can be done.



Together, the size of the GDP and the percentage of GDP devoted to defense determine the total available defense resources. I traced the decline of the GDP share and argue it should be increased. If it isn't increased, defense spending will be limited by the rise in GDP. The growth rate of GDP can usefully be analyzed as the sum of the growth rate of the labor force and the growth rate of productivity of the labor force, that is, of GDP per employee.

Over the past decade the labor force has grown at about 1 percent per year while productivity has increased at about 2 percent per year, giving us real GDP growth of 3 percent per year. Looking ahead, as we already heard today, labor force growth is expected to slow as a result of the past decline in the birth rate. Government forecasts put the labor force growth over the next 25 years at only about half a percent per year, although the exact number will depend very much on our immigration policy.

Productivity growth was only about 1 percent a year from 1970 to 1995 but has increased to double that, about 2 percent per year, since then. There's considerable debate among economists about just what caused that increase in productivity and, therefore, about the outlook for the future. I think the key driver of the productivity increase has been the Internet and the changes in management and in production processes that the Internet made possible.

The United States has been better able to take advantage of that technology than the Europeans because of the flexibility of our labor market, the ease with which new businesses can be established in this country, and the incentive culture of American management. In my judgment, the new technology will continue to bring productivity gains for at least the coming decade. The more distant future is too hard to predict, but combining the likely slowdown in labor

force growth and the return of productivity growth to its long-term average of about 1.5 percent per year suggests that GDP growth may decline from the current levels of 3 to 3.5 percent to between 2 and 2.5 percent.

Small differences like that don't seem to be all that important but the cumulative effect is really very large. With a 3 percent growth rate, GDP will increase 100 percent over the next 25 years. With a 2 percent growth rate, the rise will be only 65 percent. So it's a big difference in the potential growth of defense spending. Increasing defense spending at a faster rate than the rate of GDP growth requires raising the share of GDP devoted to defense. I think this is going to be made more difficult during the next decade by the likely adjustment of the trade deficit—I'll explain why in a minute—and more difficult after that by the aging of the population.

The United States now has a trade deficit of more than $800 billion a year, about 7 percent of our GDP. That means that we import about $800 billion more than we export to the rest of the world. Those net imports add to the volume of goods and services that we can consume or invest or devote to national defense. That volume of net imports won't continue forever. Indeed, some day we as a nation will reverse this process and we will export more than we import.

Why? Because if we just import more than we export forever, we're receiving a gift from the rest of the world. Over the past decade alone, these potential "gifts" have totaled nearly $5 trillion. Of course, we give IOUs in exchange for these net imports, that is, we borrow to pay for them. So they don't look like gifts. But as long as the rest of the world only gets pieces of paper in exchange for their goods—and when the interest is due on those pieces of paper they get more pieces of paper—and not more goods from us than we get from them, it will turn out to have been a gift.

I don't think the world is going to work that way. At some point, the rest of the world is not going to want to give us this multi-million dollar gift. At some point, the pendulum will swing the other way. The dollar will fall, making U.S. products cheaper and therefore more attractive to foreign buyers and foreign products more expensive and therefore less attractive to American buyers. No one knows just when that will happen but it will happen. When it does happen, we will be poorer as a nation in two ways.

First, we won't have the extra goods and services from the rest of the world to consume or invest or spend on national defense in the United States. If the trade deficit falls from 7 percent of GDP to, say, 3 percent of GDP over the next 5 years, a not implausible assumption, that will shrink the cumulative growth of resources available in the United States by 4 percent of GDP. If this does happen over 5 years, during that period the available resources will rise by 8/10ths of a percent less each year than the rise in GDP. So a 2.5 percent

annual rise in GDP will mean only a 1.7 percent rise in available resources. Americans will feel poorer or at least they will not be getting rich as fast, and that is likely to make the American public less likely to devote more of its income to national security.

The adjustment of the trade deficit also reduces American real incomes in another way. We now import an amount equal to about 17 percent of our GDP. When the dollar falls relative to other currencies—the Euro, the yen, the Chinese RMB [renminbi], it will take more dollars to pay for those existing imports. For example, if the dollar falls by 30 percent, also not an implausible assumption, and foreign producers maintain prices in their own currencies, the cost of buying the existing volume of imports would rise by 30 percent of that 17 percent of GDP or about 5 percent of GDP. If that happens over 5 years, the real income of Americans will fall relative to what it would otherwise have been by an additional 5 percent, or 1 percent a year.

If we put these pieces together, we see how the recent growth rate of GDP could fall from 3 percent per year to 2.5 percent, and the rate of growth of real resources could fall to less than 1 percent per year. On a per capita basis, there would be no rise in real incomes.

This is, of course, just a transition problem, this change in our balance with the rest of the world and a change in the exchange rate. It will last as long as it takes to shrink the trade deficit to a sustainable level or to transform our trade deficit eventually into a trade surplus. Once that's happened, the real income of Americans can grow at the same rate as total production, i.e., as the growth rate of GDP. But during that period, it will be more difficult to get political support for increased defense budgets.

The final hurdle to increased defense spending will be the effect of the population aging on the cost of Social Security and Medicare. These programs now take 7 percent of GDP, 8.5 percent if you include the Medicaid program. By 2016, this will rise to 11 percent, and that share will continue to rise as a result of the continued aging of the population and the higher cost of medical care, as we heard this morning from Doug Holtz-Eakin and from J.D. Foster. It won't be long before the increase in spending on these three programs from today's 8.5 percent of GDP will be as large as the entire defense budget.

The extra tax to pay for that increase in these programs would then be equivalent to raising the payroll tax from 15 percent today to more than 25 percent. If the increased cost were financed by raising the personal income tax that would mean an increase of all tax rates by about 50 percent; in other words, taking the 25 percent rate to 37 percent and the 35 percent rate to over 50 percent. Such higher taxes would hurt the economy and would be a major impediment to increased resources for defense.

That's one more good reason, in my judgment, to focus on transforming the current pure tax-financed, pay-as-you-go systems for financing Social Security and Medicare to a mixed system that combines a tax-financed basic program with individual investment-based accounts in a way that can avoid that tax increase. I think that is the major fiscal challenge facing the United States for the decade ahead.

The picture that I've been painting today is a difficult one for national security. The challenges to our nation's security are growing and becoming increasingly complex. The manpower and the equipment that will be needed to deal with these challenges will be more expensive and yet the budget resources available will grow more slowly and will have to compete with the increased cost of the social programs for the aging population. This will force defense planners to make painful and difficult choices about the force size and structure, about the mix of equipment, about the nature of the Navy and of the Air Force. These choices are complicated by the evolving technology, the changing character of the enemies we face, and the long delivery lags.

But I believe that the American public really does care about its security and would respond to explicit discussions of the choices that we face.

I was struck by a recent RAND study that homeland security could be significantly increased and a serious gap in our preparedness could be closed by creating a rapid-reaction homeland security brigade of about 3,600 members rotating between active Army and National Guard for an annual cost of only $200 million, or less than $1 per person per year.

Making better use of any available defense budget is obviously extremely important, but it's impossible, in my judgment, to achieve the level of national security with a budget of only 4 percent of GDP that could be achieved by returning to the relatively higher defense budgets of previous years. Getting the American public to understand that, and the Congress to act accordingly, is the major economic challenge for national security.

Thank you.

I'd be very happy to try to answer questions or to hear comments about anything I've said or haven't said.



STANLEY A. HOROWITZ (IDA): I think you've really framed the question very well but looking at the political situation, the share of GDP devoted to defense is likely to increase only if we face a serious explicit geopolitical setback, like a nuclear attack or Islamic control of the Middle East. One could

argue that's appropriate. The risk is when the setback comes, it will be too late to reverse it and that's what I worry about. My question is, do you see a mechanism to avoid that? Do you really think that explicit public debate can reverse that tendency?

FELDSTEIN: Yes. I may be conditioned in my thinking by my experience of serving in the Reagan administration. There was no dramatic event of the sort that you talked about. There was the failure of the United States to release the Americans from the embassy in Iran. That caught people's attention, but there certainly have been enough things recently to catch people's attention.

So it is a question of being able to explain to the public how little we are spending relative to our GDP, relative to what we spent before, and then to bring it down to the very specific things. When you talk to people about $525 billion it sounds like a lot of money. If you say 3 percent of GDP, most people don't know what a percent is or what GDP is. But if you say homeland security could be improved by having a trained brigade for less than a dollar a person a year, it's hard to see why you couldn't get political support for that.

If you explained that this is what our Army needs and doesn't have and that we're talking about spending a small fraction of our military budget and an infinitesimal fraction of our GDP for it, and that we're otherwise scheduled not to replace decade-plus-old technology for 30 years—I think the American public with the right leadership could be persuaded to spend some more money on that.

Yes, sir?



CHRISTOPHER H. HANKS (IDA): I wonder if you could say a few words about the underlying rationale for the percentage of GDP approach, especially since a substantial portion of the GDP increase came from productivity increases. I'm wondering, more wealth is being generated, the argument is basically that because there's more wealth we need to have more protection so that the rationale for—

FELDSTEIN: The rationale is basically a "we can afford it" rationale. If you had said to spend $525 billion in today's dollars 40 years ago, people would have said the burden of that would have be too great, but now we can spend 3 percent or 4 percent or 5 percent of GDP on national security even though the dollar amounts seem extremely large in terms of how we want to allocate our available income.

It's a political decision, but it seems to me if you say it is a quite small share of our total spending to protect our national security and to protect our influence in the world—

I think that talking about dollars in one year versus dollars in another, when the economies are very different, when the population is much larger, and the GDP is much larger, the burden on the economy, the tax rates that would be required to finance it are lower when we're looking at it in terms of a percentage of GDP today rather than in the past.

I hope that answers the question.

ALINE QUESTER (CNA Corporation): No one has talked very much about immigration and what that does to our growth rate. There is a lot of talk of what's going on in Congress with immigration legislation. Noncitizens have done very well in our military, particularly with respect to manpower. I wondered if you wanted to comment on that topic.

FELDSTEIN: On the role of noncitizens in the military, I don't know enough to begin to comment. On the general question of immigration, the economic arguments against it are that these people are, when they come, below average in income, and more likely to take advantage of transfer programs. I think the evidence suggests that over any significant period of time it's really very small and the impact on the incomes of what are called "natives," meaning nonimmigrants, while negative within the competing groups, have effects that are, again, quite small.

I don't think that we should be trying to decide that issue in terms of its economic impact.



AYEH BANDEH-AHMADI (IDA): You mentioned that you made a comparison with the previous GDP levels of defense spending to show that we could probably, as a nation, tolerate or afford spending more money on defense, but would you talk a little bit about what that additional spending would purchase and whether you think that going back to the cold war levels is enough. Do you think we should spend even more or slightly less? At what point do we know that we've spent the right amount and what are we getting for it?

FELDSTEIN: A very good question, and I wish I knew how to answer it.

I feel strongly I know the direction but I don't know how far one should be going in that direction. The 3 percent today, the same level that we were at

in 2000 as a share of GDP, I do believe is too low. I gave you three kinds of examples of things that we would get by spending more: improved homeland security, Army modernization, and increased manpower.

Take the issue of Army rotation. I mentioned in passing that with the current size of the active combat forces that are serving in Iraq, we've reduced the time for rotation for re-training for just getting back up to speed very dramatically, and in order to be able to sustain the kind of efforts that we have now, you would need to have a substantially active combat force, and for that you would have to pay I'm sure more per soldier and also obviously proportionately more in the aggregate as you scaled up.

So our ability to carry out missions, our ability to defend at home, the quality of the equipment that we can put in the field, are all dimensions that would be helped by increased spending.

BANDEH-AHMADI: How do we know when we've reached the right point?

FELDSTEIN: There is no indicator in terms of percentage of GDP. It would have to be a kind of micro cost-benefit analysis in which you say for $10 billion we can modernize the Army over the next 30 years. Doesn't sound too good. What if we spend $15 billion a year?

So really, it's a judgment in the end about whether it pays to increase the spending. But when I look at some of the things about our current situation, whether it's in terms of manpower numbers or the state of the equipment, relative to the technology that's out there, I think we ought to be spending more and I think that economic arguments that we cannot afford it really are unpersuasive when it's such a small percentage of GDP.



CHARLES W. PERDUE (Government Accountability Office): My question has to deal with if we were to increase the amount of resources going to defense, say, something like from the 3 percent now up to, say, 6 or 7 percent, what would be the impact on our productivity growth? Presumably resources are being shuffled over to the defense sector, and they have to come from somewhere.

FELDSTEIN: The question is where they should come from, and how we finance that increased defense spending. There was certainly no slowdown in our productivity growth in the 1980s when we had a substantial increase in defense spending. You could finance it in ways that would be very harmful; you could finance it in ways that wouldn't be harmful. It has to be seen in that context.



KAREN W. TYSON (IDA): I work with the IDA intern program, and I hope you will send us some of your promising students. We would very much like to have them. My question is, given the political situation and the resistance to increasing defense spending as a percentage of GDP, what kinds of guiding principles would you recommend for making the choices?

FELDSTEIN: There is no overall guiding principle. You take the three things that I talked about. Each of those, whether it's a question of how we should accelerate something like the Future Combat System or what we should do about having dedicated homeland security forces, has to be analyzed and evaluated and is a judgmental matter for experts. You look at the cost and you look at the benefits and beyond that you've got to consider details specific to the program, and think about how to assess those.

When you listen to the discussions about our lack of preparedness in terms of either local or national resources to respond to a major terrorist attack in the United States, it doesn't take a lot of imagination to think we ought to improve on that—and how much would a brigade do? Well, you are going to have to think that through in terms of what they can do in response to all kinds of terrorist incidents.



JOHN E. WHITLEY (OSD(PA&E)): Let me ask one. You've used homeland defense in many of your examples. Going back to this morning, talking about the private sector's incentives to provide some homeland defense services, could you comment on that, on Mr. Holtz-Eakin's argument? If you are sympathetic to it in any way, do you see the issue in terms of realigning homeland defense dollars as opposed to the quantity of homeland defense dollars?

FELDSTEIN: The thing I've come back to, is that there's no way the private sectors can substitute for that. There are certainly ways in which coordinating private resources may make it less necessary to maintain national resources, for example, when large companies have the necessary vehicles and personnel and so on. However, the shifting of financial liability to the private sector, removing the Government insurance, or having a much deeper level of Government insurance, would leave much more risk on the table for the private sector. I think that would force changes in location of businesses and location of personnel. A company facing a large insurance

bill, if it's going to locate in an area that's regarded as a higher risk area, may act differently.

Those are ways in which private actions guided by market incentives may lead to a reduced homeland security risk, not substitutable by anything that the Government would otherwise do.

So I think we ought to be thinking about those things, about the incentives that we are creating for individuals to take risks, for businesses to take risks, but I don't think there's a substitute in general or overall for the role of the Government in dealing with crises, in dealing with specific incidents, or in dealing with the intelligence function of protecting our homeland security.



DAVID L. McNICOL (IDA): I was intrigued by your statement that you were interested in attracting academics to work on national defense issues, possibly their economic aspects. Is there more you can say about that? Are there things that we in Government could do to contribute?

FELDSTEIN: Well, my limited experience in trying to introduce students to people here and elsewhere is that they are quite receptive. What do graduate students need to get excited about a subject? They need access to data, people to talk to who understand the institutions, and a sense that the research they are doing is talking to a real need and is not just a plaything, that it is something that really is important. I think organizations like IDA can certainly fill that role.



DANIEL B. LEVINE (IDA): You subtracted current spending for Iraq and Afghanistan to get your 3 percent but that spending involves a certain amount of learning, and you might call it test and evaluation, so we find out about things we ought to be producing.

FELDSTEIN: Yes, I agree with that. I was saying the sort of baseline level of defense spending hadn't increased at all, that all of the increase as a share of GDP since 2000 has been targeted at Iraq and Afghanistan, but it's certainly true that it has some of these learning, for better or worse, learning byproducts.



DAVID TRYBULA (U.S. Army): How would you respond to an argument that would suggest that a large increase in U.S. defense spending—given that we now, as you said, spend more than the next 40 countries combined—could lead to our intentions becoming misperceived and therefore other countries becoming less cooperative and perhaps more hostile in some cases and, therefore, [result in] a reduced overall level of security?

FELDSTEIN: Of course, there aren't too many other countries that could rise to that challenge.

I suppose what we're talking about is China. And China, I think, is on its own path to developing first-class military capability. They won't get there overnight, and right now they are a poor country on a per capita basis, but there are a billion plus people, and what matters for defense capability is total GDP, not per capita GDP. So I think they are going to develop their capabilities. We look ferocious enough but what we're not capable of doing now is defending ourselves adequately and projecting force to deal adequately with the new kind of enemies that we face.

So China may, over the horizon, have to be dealt with but in the short run we could say to the Chinese: the kind of defense budget we're talking about building up now is not a budget that would be relevant if we were going to fight you. We can ask the Chinese whether that's true of what they're doing. When they say their concern is with Taiwan, you can ask: Why do you need ICBMs that can reach New York?



CARL J. DAHLMAN (Office of the Under Secretary of Defense, Personnel and Readiness): The comparison of percentages that we spent on defense in the Vietnam war versus today straddles one of the most fundamental changes we've seen in the Defense Department over this period of time, which is the introduction of the All-Volunteer Force. It's really meant [indiscernible]. I think now is the first time really we've engaged an All-Volunteer Force in a sustained war; these are people who, whether they think that could be sustained during Vietnam, and I think everybody believes the answer to that is no. It's kind of remarkable we can sustain the current conflict with volunteers.

I think what we have learned is that the marginal cost of sustaining this kind of a war with volunteerism rises quite rapidly. And, with the current budget process, that forces direct payoffs that are really suboptimum. That's the argument you were making because the only way we can pay for it is out of acquisition and modernization. So we're forced into this wrong decision of, can we afford to finance the current war with the transportation costs, ammunition costs, other costs, and the rapid increase in marginal costs of keeping and training and recruiting personnel? We can only go to the acquisition budget to make that tradeoff within any given top line. That's what we have to do. That's what forces the Navy and the Air Force to do what they are doing right now. You've got to ask yourself what kind of changes in the budget process might lead us to the better discussion of the issues that you plan to raise here.

One possibility could be that we force Congress to separate the defense budget into two separate parts? One is the war budget and the long-term sustained budget for the Department dealing with longer-term security issues, you know, separate the budget into different pieces and have a different budget for each of them.

FELDSTEIN: In a sense we're doing that now by—

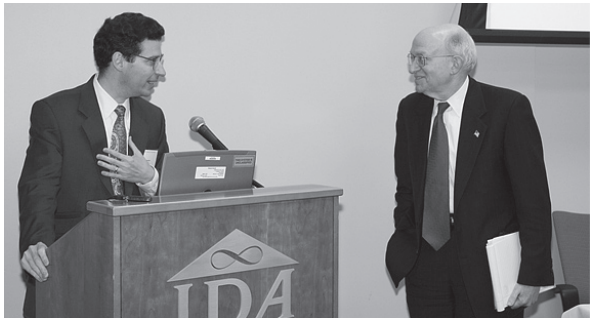
DAHLMAN: We're not quite. We are doing the supplementals but we're not quite yet to the discussion that you are raising, and I think the suggestion I have would get us there. Another suggestion would be to have a capital budget, which is separated from a manpower budget and sustainment budget, so that we can think of the tradeoffs of modernization and technology versus the rest of the Department.

I have a couple suggestions. Something else you might throw on the table to get the discussion focused on the issue of increase in marginal cost of personnel in contingencies versus the recapitalization issues. That is a strong dilemma for this Department now.

FELDSTEIN: Thank you.

JERRY PANNULLO: Thank you, Dr. Feldstein.

[Recess]





DRIVERS OF DOD COST GROWTH: PERSONNEL COSTS

Solomon M. Mussey
Stephen Heffler
David S.C. Chu

JERRY PANNULLO (Director, Economic and Manpower Analysis Division, OSD(PA&E)): Mr. Solomon Mussey will be the first speaker. He is the Director of the Medicare & Medicaid Cost Estimates Group in the Office of the Actuary at the Centers for Medicare & Medicaid Services or CMS. His group is responsible for short-range and long-range cost estimates related to the Medicare and Medicaid programs, including estimates for the annual trustees' report [the Board of Trustees of the Old-Age, Survivors, and Disability Insurance (OASDI) program], the President's budget, and miscellaneous cost estimates related to proposed legislation and health care reform.

Mr. Mussey has 32 years of actuarial service with the Federal Government, including 3 years with the Social Security Administration and 29 years with CMS. He has a BA in mathematics and an MA in statistics, both from the University of California at Berkeley.



The second speaker is Mr. Stephen Heffler. He's the director of the National Health Statistics Group within the Office of the Actuary at the Centers for Medicare & Medicaid Services. His group is responsible for historical, national health spending estimates; for health spending estimates by state and age; and for short- and long-run projections of national health spending. That group is also responsible for the development and maintenance of the price indexes used to update Medicare payments to hospitals, physicians, and skilled nursing facilities. Mr. Heffler holds a BA in economics from the University of Maryland, Baltimore County and an MBA from the University of Baltimore.

The third panelist is Dr. David Chu. He's the Under Secretary of Defense for Personnel and Readiness. In this capacity, he is the Secretary of Defense's senior policy advisor on recruitment, career development, pay, and benefits for

active-duty, Guard, and Reserve military personnel and DOD civilians. He is also responsible for overseeing the state of military readiness, the defense health program, the defense commissaries and exchanges, the defense educational activity, and the Defense Equal Opportunity Management Institute. Dr. Chu served earlier in the Government as the director and then Assistant Secretary of Defense for Program Analysis and Evaluation.

As Dave McNicol mentioned earlier, the first of these conferences was held under Dr. Chu's sponsorship in the 1980s, and we're always delighted to have him as a speaker here. I checked, and Dr. Chu has been a speaker or panelist at four of the last five conferences we've held.

Dr. Chu has served as the Assistant Director for National Security and International Affairs at the Congressional Budget Office, the director of RAND's Arroyo Center, and the director of RAND's Washington office. Dr. Chu holds a bachelor's degree in economics and mathematics and a doctorate in economics, all from Yale University.



SOLOMON M. MUSSEY (Director, Medicare & Medicaid Cost Estimates Group, Office of the Actuary at the CMS): Thank you. I'm happy to be here today. I'm going to focus mainly on the Medicare program. After I'm done Steve will talk about some national health spending trends.[6]

First, I'll give a very quick summary about the Medicare program. There are two main programs within the Medicare program. There is the hospital insurance program, which pays for inpatient hospital expenses, skilled nursing facility, some home health care, and hospice care. Then there's the supplementary medical insurance program, which is actually divided into two programs now as well. One is Part B of Medicare, which covers physician expenses, outpatient hospital expenses, and some other services. Then there's Part D of Medicare, which is the new prescription drug program.

We have two trust funds that handle the financing for these two programs. Part A, or the hospital insurance program, is financed by payroll taxes. These taxes are legislated and most working individuals pay 1.45 percent of their payroll into the trust fund. Employers pay 1.45 percent as well. Self-employed individuals pay the full 2.9 percent.

The Part B program is financed mainly by premiums and general revenue transfers. Aged or disabled beneficiaries who are eligible for Part B pay roughly 25 percent of the aged cost, and the other 75 percent of the financing comes from general revenues.

[6] Appendix E contains copies of the material that accompanied Solomon Mussey's presentation.

The Part D program is also financed by premiums and general revenues. About 11 percent of the total cost comes from premiums paid by the individuals enrolled. Another 11 percent comes from state payments.

This is the part of the Medicaid program that used to cover drugs that are now covered under Medicare. The states have to chip in a certain amount. And about 78 percent comes from general revenue transfers.

Let's look at the HI [Hospital Insurance] program first. This chart here shows you the outlook of the program. It shows the income coming in, and the outgo going out. The dotted line starts out on top and eventually comes below the other lines; that reflects the assets in the Part A trust fund.

Most of the figures that I'm going to be showing you are from the 2006 [OASDI] annual trustees' report. It's a report that our office puts together for Congress. We do three sets of projections in that report. There's an intermediate set of projections, which is what I'm basically going to focus on. The reports also have high-cost and low-cost projections as well. You can see for the HI program, in the short range initially, we have more income than is needed to pay the expenses of the program, but ultimately the expenses are more than the income so the program starts drawing down on the trust fund and eventually the trust fund will be depleted.

Under the intermediate set of assumptions, it's projected that the HI trust fund will be depleted by the year 2018. Under the high-cost scenario, it's 2013. Under the low-cost scenario, the trust fund goes out to 2041.

This chart shows the long-range outlook of the program. As you can see, the income rate is relatively flat; that's because 2.9 percent is legislated to cover the cost of the program and is fixed indefinitely. There's a slight increase in that bottom line that says "income rate," and that's because, in addition to the taxes, there's a small amount of money that comes in from taxation on Social Security benefits. A small part of that is deposited into the HI trust fund.

This particular chart shows cost and income as a percentage of taxable payroll. Since the program is financed through payroll taxes, it's easier to see both in the short range and long range when you present it in terms of taxable payroll. So you can see that the HI trust fund is in bad shape. Costs are continuing to rise much faster than the taxable payroll that supports the program. What's between the upper line and the lower line there is the HI deficit.

We know that health care cost is just growing rapidly. Growth in prices, utilities, and intensity of health services are just outpacing the GDP growth.

Another big problem that I'm sure you are all aware of is that in about 2010 we have the baby boomers starting to become eligible for Medicare. As

you can see on this chart, around 2010 is where it sort of takes an upswing, and over the next 20 years or so it's a pretty fast growth rate. Then it tapers down a little bit, but it's still pretty significant growth.

The next chart shows the outlook of the SMI [Supplementary Medical Insurance] program, starting with Part B. The Part B program, as I said, is financed by premiums and general revenues. The premium amount and general revenue matching amounts are determined on a year-by-year basis. So for any time in the future, the income essentially matches the outgo. There is a trust fund to cover if expenses are higher than what was originally anticipated and the financing isn't adequate for that year; then, you have the trust fund to draw down and cover the extra financing that's needed for that year.

You can see this chart shows over the short range that things are okay at least from a trust fund point of view. The program income generally matches its outlays. This chart shows Part D, the drug program; the income and outlays match exactly, as you can see. When Congress set up this program, they set up the general revenue matching to be more flexible than it is under the Part B program. Essentially the Part D program will get whatever it needs on an ongoing basis to make up for the full financing needed for the Part D part of the program. So there is no need to have a trust fund to cover any contingencies when projected expenditures come in higher than expected. It will just be made up from general revenues directly.

The next chart puts the two parts of the SMI program together. You can see the total expenditures for Part B and Part D, and this is expressed as a percentage of gross domestic product. You can see the bottom part of the chart shows the total premium amounts; everything above that is financed by general revenue transfers. Again, there is very large growth forecast for the program, especially starting after 2010.

Now, even though the SMI program is funded with premiums and general revenues on a year-by-year basis—and from a trust fund point of view that's fine—there's still a lot of concern about the growth in the cost of both Part B and D programs because it is growing much faster than the growth in GDP, and that presents other problems. From a budgetary point of view, since general revenue transfers are coming from the general treasury, there's lots of concern about that.

Another implication of the continuing rapid growth is that, either now or in the next few years, the premiums and cost-sharing amounts that individuals pay will account for about 31 percent of the average Social Security benefit. But by the year 2080, roughly the end of our 75-year projection period, the premiums and cost-sharing amounts are going to account for about 63 percent of the average Social Security benefit.

This chart puts all three pieces together, Part A and Parts B and D, and shows the combined cost as a percentage of the gross domestic product. You can see the bottom part is the payroll taxes for the HI program. Right above that is the tax on Social Security benefits, and then on top of that are the Part D and B premium amounts. With all of the general revenue transfers that are currently accounted for under current law, there's still a shortfall. Of course, that's because of the Part A or the HI program being inadequately financed through the payroll tax.

Even if we forget about budgetary impacts, the programs themselves are not financed adequately. Mainly it's the Part A part of the program that's causing this deficit between income and expenditures.

With that I'll turn it over to Steve to talk about national health trends.



STEPHEN HEFFLER (Director, National Health Statistics Group, Office for the Actuary at the CMS): I'd like to thank you all for the opportunity to attend here. I hope this will be an interesting presentation.[7]

As I was sitting, I was thinking that I get to follow Martin Feldstein and Sol Mussey with his 32 years of Government experience, and to precede someone who spoke at the last four or five conferences, so hopefully your expectations of me are very low. Let's get going.

Sol gave you an overview of Medicare, and what I'm going to do is take a much broader look at the overall health care system. We're going to put Medicare in context with the rest of U.S. health spending. Before we do that, I wanted to give you a little bit of background, some terminology, and definitions so that as I go through the presentation things will make some sense.

We have a statistic that we produce in my group, called the national health expenditures, the definition of which is on the slide. I'm not going to repeat it, but essentially it's a matrix of spending on all health care in the United States by type of service, hospital care, physician care, types of goods, prescription drugs, durable equipment, nondurables, as well as by payer.

Medicare is one of those payers, together with private spending and out-of-pocket spending. We put those statistics together each year and release estimates each January with one additional year of national health spending data.

Our latest historical estimate is through 2004. In January of 2007, we'll release the 2005 estimate. We have an annual time series of health spending data that starts in 1960 and runs through 2004.

[7] Appendix F contains copies of the material that accompanied Stephen Heffler's presentation.

We also project this national health spending out only 10 years. I'm not going to discuss spending as far out into the future as what Sol had presented.

There's a little bit of background information on this slide about our methodology.

We have a group that does this projection. We don't reinvent the wheel and re-project Medicare. We use the official Medicare projections. We don't reinvent the wheel and project Medicaid, either. We use the Medicaid projections that are in the President's budget. What we do is we put the other pieces of the health sector around that, specifically private spending and other Government programs. We do that based on economic and demographic assumptions that are in the trustees' report. All the spending projections are on the same basis. As I said, we currently run these projections through 2015. That information is usually released each February, so in February of 2007 we'll update those projections.

I'm going to go through the four major factors in our model that project private total health spending in a little bit of detail. I put on the slide that it's the future and the past. We're modeling off the past. While we think these are the major drivers in the future, the reality is they were the ones that we feel are the most important in explaining the history. We'll look at how our projected trends in these factors influence our overall projected trends in health spending.

Given the quality of people in this room I don't have to say this—but there are factors that just can't be picked up in a model, things that are one-time effects or effects that can't be captured through an economic variable, especially when you are doing it at a very broad macro level like this.

When we were looking at prescription drugs, we came across drugs like Claritin that went from being a prescription drug to over the counter. How do you model that? That is a one-time effect. We have to adjust these forecasts. We have a model, and we have to do the best we can.

The first factor up there was income/economic growth. When all is said and done, this is really the factor that is the most important in shaping our projection.

A little bit of background here. We are projecting private spending, and this is a chart that compares private health spending to trends in overall disposable personal income. We've taken price out of here. We've taken population growth out of here as well. So it's real per capita private spending. It does not show a very smooth pattern. You can see there are lots of ups and downs and there are different reasons for that, so the red line is what we're trying to project,

which you can see on the left side of this chart. The income term is this dotted line. You'll see in our model an average of the income variable. In this case, it's a 5-year moving average. We're taking out some of the real cyclical trends you see in GDP in income, and we're allowing past years to affect current year projection of health spending.

You can see generally that income is a pretty good indicator of what's going to happen with health spending; there are many studies and references out there on this. However, it's not a good indicator of health spending today. Income growth today is a good indicator of where we're going to go with aggregate health spending a few years from now.

You can see in this chart that we had a recession in 2001. That doesn't show up as a major effect in this moving average until you start to get to 2003, 2004, and 2005. Other than spending in 2006, which is obviously a result of the Part D effect, what we're seeing, what we've seen in the last few years, and what you can see in this projection is that spending has slowed somewhat but not dramatically in 2003 and 2004 compared to 2001 and 2002. You can see that if you take out that big dip in 2006, then our projection actually tends to follow that cycle.

Because of the strong economic growth we've had the last couple of years, which you can see as a little hump in that dotted line there in 2006 and 2007, we actually project a slight acceleration through this period in health spending.

Again, this income assumption is based on the trustees' economic assumptions, so it flattens out in the out years. That's one of the major drivers in our projection and it does form the shape of our trend. Another factor is price; in this case the red line is the personal health care deflator. It's our index that we develop; we use published price indices from the Bureau of Labor Statistics on medical care. The dotted line there is an index that we create, called input price index. The story here is that the prices that are charged and paid for medical services are driven by price increases associated with the input cost of providing that care. In this case, input cost will include wages for nurses and other types of medical occupations, and might include the cost of supplies and equipment.

I'm sure David is going to talk a lot about some of the personnel cost drivers. But personnel costs are essentially the driver of the input price index, so you can see their effect in this trend here. We came out of very high inflation periods in the late eighties and early nineties. If we considered this chart further back, this would be much higher than we have here. We had much higher inflation overall in the seventies and eighties.

You can see the decelerating trend in health care prices that occurred through the mid-nineties. There were two major factors there. One was that

we had much lower overall inflation in that period, but we had lower overall relative medical price inflation. A lot of that was attributable to what happened with managed care, the shifting to managed care plans and the discounts that were achieved, particularly from hospitals, in price negotiations. You see that effect disappear somewhat in the latest historical period. That was driven both by the retreat of managed care as well as other input-driven effects, such as the nursing shortage, malpractice costs that started to increase dramatically, energy costs, and fuel costs. There were a lot of factors driving that reacceleration in price but it hasn't gotten back to where it once was. You can see that we project that it will essentially level out in the 4 percent range for most of the period.

The next factor is demographic factors. This chart always brings up a lot of questions. In our model, the way we project, demographics actually is not that large of a contributor to the trends for overall U.S. health spending. You might ask yourself why. Well, let me describe what we call demographic effects. The overall population growth and thus the number of people really don't change all that much. The population growth rate is about 1 percent a year. It's not like it rises to 5 percent in any given year. It's pretty stable over most of the history.

Then there are what we call "age/gender effects." These effects are estimated by looking at relative health spending of different age groups and then modeling changes in the age structure of the population given those different consumption levels for different age groups. The purpose is to see what effect changes in the age structure of the population would have on health spending, holding the relative spending across age groups constant. We have found that this isn't that large an effect either.

Combined, we are in the 1 to 1.5 percent range over most of the history and most of the projection here. Whereas you can see our health spending trend is estimated to be in the 6 to 8 percent range, even higher if you go back to the early 1990s. What this is masking is what's happening underneath. This is aggregate; it includes everything: total health spending, total population growth, and the total aging effect. If we look at payers, we have a slightly different story. Sol gave you the Medicare story about the baby boomers and the effect that has, so I'm not going to repeat that. We're only going out to 2015 here, but you can see in that dashed yellow line what starts to happen at the end of this period as you get more and more people moving into Medicare.

You can see in the history of this trend, both the public and private components, that these spending lines are all over the place. There are a lot of factors that affect them. Again, public includes Medicare, Medicaid, and all Government costs, and private includes private health insurance, and out-of-pocket costs. If we extended this chart back you would see it over

the whole history. Public and private costs grow at different rates at different times, whether because of legislation or other trends that affect one particular sector. We can't expect public and private sector costs to grow similarly over the projection period. One of the reasons why is this: that odd shape in the chart in 2006 is due to Medicare Part D, specifically people going into the Medicare program to get their prescription drugs; what used to be out-of-pocket spending is now becoming Medicare spending, and there is a resulting change in the trend and the relationship amongst these different payers.

My last slide here kind of pulls all this together and gives you an indication of what this means as a share of GDP.

We are projecting health spending growth to continue to outpace GDP growth for each year of the projection period. While we estimate health care spending at 16 percent of GDP in 2004, we predict that nearly 20 percent of overall economic output will be accounted for by health care by the year 2015; that's 1 in 5 dollars. That increase in GDP share of health spending in the projected period is in line with the longer-term trend. There are periods with less steep growth and periods with more steep growth, but essentially our projection is that health care will continue to demand more of the dollars that this country has.

As Sol showed, if we consider the effects past 2015, these issues become much more pronounced. One of the things they asked us was how this might impact defense spending and personnel costs. I'm not even going to begin to try to answer that question, but I did have a couple of remarks about where we're headed. All you've got to do is pick up the paper every day and there's a story about consumer-driven health care, health savings accounts, price transparency, mergers, Part D, private health insurance enrollment, and the uninsured. This is a hot topic right now. There are a lot of people talking about how to address these situations. This morning I think Douglas Holtz-Eakin said this was an issue for him; it was a very big issue. There are a lot of ideas out there about how we can slow this trend in the future. How they relate to the DOD, I'm not really sure. I'm sure there are some unique factors that are present in the DOD's picture that might not be present in the overall health spending trends; these would have to be taken into account.

We did pull some numbers together so that we could look at the longer-term trend. This slide shows health spending that we attribute to defense for the years from 1990 to 2004. The growth rate on average each year was a little lower than the overall trend, about a percentage point lower each year. Underlying that are two very different stories, a much lower trend in the nineties and a much higher trend over the last 4 years.

As I summarized this and thought about it, our projection is that the demand for health care will continue to be high. We don't see any reason why people aren't going to continue to demand health care in this country. It's going to in the form of expensive, new technologies, and the labor input used to provide that care. We've got a growing portion of our population that's elderly, and they use a heck of a lot more health care services than the younger population.

At the end it's going to lead to budgetary issues for everyone, whether it be individuals, employers, governments, or our economy as a whole, and I think that's probably a theme throughout this conference; actually it's the focus of the conference.

With that, thank you again for the chance to speak with you. Thank you.



DAVID S.C. CHU (Under Secretary of Defense for Personnel and Readiness): Thank you for the chance to be with you this afternoon and to pick up where Steve left off. I wanted to advance immediately my main argument, which is that health costs are not the only problem as far as compensation issues are concerned, and the same is true for labor cost issues generally. We are challenged by compensation and labor costs, and I'll speak to those challenges. [8]

I think we all agree on these challenges [slide 3, appendix G]. The heart of the defense enterprise is, after all, its people. Without a motivated, well-trained set of individuals, you do not have a defense establishment. We do have to get the answer right as to what number and types of people we want. On the other hand, as all the economists here will immediately reiterate, any administration that wishes to win the next election should expect that per capita labor costs will go up inexorably over time, and if we aren't careful about that, we will crowd out in the defense budget the money available for reinvestment because it is all in a single budget—the Defense Department, as people here appreciate, runs an All-Volunteer Force. We don't use conscription.

As you look at how the Department has answered the question of how many people we need to carry out military functions, you can see from this chart [slide 4], that it is not just an active-duty population that drives our labor costs. We have a Selected Reserve of just under 900,000 individuals, which we now deem as the operational reserve of the United States, not just a strategic asset of the country. We have a significant de jure and de facto civilian work force; de jure are the people who actually work on the Federal payroll, de facto are those who serve as contractors.

[8] Appendix G contains copies of the material that accompanied David Chu's presentation.

I recognize this estimate is an imprecise number, but it is clearly a very significant total for the Department as a whole. When you look at the longer-term history of the Department, what you see is that while labor costs have gone up over time in the eighties and early nineties, the Department was successful at constraining labor costs. They did not eat inexorably into the Department's overall budget. But in the last 10 or 15 years, that has not been true, and that has not been true in the most recent history of the Department.

One of the phenomena we're now dealing with in the Department is that labor costs are marching up at least as rapidly as the budget as a whole [slide 5]. That trend is intertwined with the costs of the war, but I do think that a more significant set of problems lies underneath these lines on this slide. You can see a portion of this over the last 5 years in the left-hand graphic of slide 6.

For the active force alone, remembering that this is just a part of the total, note that labor costs have gone up by roughly a quarter in the last 5 years. That increase is not uniformly distributed over the components of cost. It's not really an issue of changes in the basic pay rate—that's the right-hand block on this chart. It is disproportionately concentrated in two elements, housing and health care costs.



The housing increase is, we hope, a one-time phenomenon that's reflective of our decision to pay the full out-of-pocket housing cost as estimated by surveys that we deploy in all the markets in which our people live: what it costs for a family of four with an apartment or house.

It is important the Department meet what we think is the competitive standard we need to aim at in order to recruit a quality volunteer force, and that is to pay at approximately the 70th percentile of civilian earnings for individuals with similar academic credentials and years of experience. Those academic credentials vary over the course of a military career. At the start, they are a high school diploma for enlisted personnel and a bachelor's degree for officers. At mid-career for enlisted personnel academic credentials usually include some college and for officers, a master's degree. For the most senior enlisted personnel, credentials probably include a college degree. So there's an extra steepness across a career. A key way we've gotten to this standard (we were not there in 2000 or 2001), is by buying down the out-of-pocket housing costs. That's high-powered money because it's tax exempt, particularly so for officers.

One of the biggest problems for the Department going forward is how to manage the health care portfolio. We are different, and the previous chart hinted at this. We are different from most private employers in terms of our compensation package.

For historical reasons, and for tax reasons also, we pay a very substantial fraction of total compensation in the form of fringe benefits [slide 7] that are largely non-cash, i.e., in-kind; one issue out there is whether we should continue to do that. There are questions of whether people perceive those benefits as being equal to how they would value the same commodities if they made the choices to purchase them themselves, and issues of what it costs us to provide those benefits.

That all said, there's also the tax issue. The Department got legislation that reinforced the tax exemption of these benefits for military personnel, and for the officers especially. Officers are quite well paid. Thus, changing to an all-cash system, which some people would advocate, would be a fairly expensive proposition for the Department. There are complex historical, practical, and tax reasons behind this outcome. But, if you read the CBO [Congressional Budget Office] reports, it's clear where they would like to go, which is toward a more cash-oriented system.

Now, a part of the challenge for the Department is that we have a great deal of help in reaching conclusions as to what the compensation package would be like [slide 8]. This is not like in private-sector employment where you may decide only subject to what the marketplace discipline imposes upon you.

This is a chart that displays since the year 2000, with the effects beginning in fiscal year 2002, what the Congress has added to the military compensation package that was not originally endorsed by the executive branch. You can see by the mid-years, by the end of this decade and beginning of the next, the annual effect of those decisions. In other words, these are compensation elements that the executive branch did not judge to be the most efficient way to spend the compensation dollar.

The effects of these congressional changes, as you can see by the end of the forecast in this chart, will comprise a significant fraction of the investment budget of the Department. The biggest single part of this, of course, is the blue bar over here, which reflects the decision by Congress to offer a wraparound package, called TRICARE For Life, to all military retirees 65 years and older, i.e., Medicare-eligible retirees. It's a very generous package. They do have to pay the Medicare Part B fee for that package. My colleagues here have introduced some excitement because those fees will now be means tested. I'm not sure our population understands the likely effect of those fees yet on their income stream.

What can the Department do in this situation [slide 9]? I would argue that we in the Department need to pay attention to the first pie chart I showed, which depicted the decision about how many people we need in the first place. This is not a market-oriented organization. It's a bureaucratic organization.

Bureaucracy often measures one's authority by the number of people employed in his or her enterprise.

You can see this effect in the classic Title 5 civil service promotions; it's true that promotion is often determined by how big one's office is, measured in terms of the number of people. That's not how the private sector would think about success. One of the things we're trying to do is challenge some of the pertinent answers that have been received.

A big part of what we can do is to focus on how we can make the people we have more productive, regardless of whatever decision we take on the size of the labor force. I'll take the medical sector specifically as a case in point. If you look, for example, at the number of patients seen by our providers, adjusting for the time that they have in the office, it's at the low end of what my colleagues here in CMS would report as typical of the private sector.

That is not surprising. This is a salary system. There are no incentives in this system for seeing more patients. Your commander evaluates you by asking whether the force is healthy, and not by asking whether you moved through the largest number of patients. All the pressures that began to occur in the private sector through managed care's inauguration over the last 15 years are mainly absent in our in-house system. We are looking at the demand side by challenging whether as many physician positions ought to be filled by military personnel as is now the case.

One of the truisms is that military personnel are the most expensive resource we have [slide 10]. This is an example of the pay for a yeoman who is a personnelist [working in the field of human resources] compared to what we would pay a similar civilian. The blue bar in the middle reflects the assumption that this individual is a GS 6. The light blue block reflects what we would pay if we paid at the 50th percentile for human resource specialists. Military personnel are generally the most expensive solution.

The Department has embarked, as many here know, on a major effort to reconsider the staffing of the enterprise [slide 11]. We propose to move positions from military to civil status. There was a similar effort made in the Department in the early 1970s. The Department converted between 20,000 and 30,000 military positions to civil status. The bureaucratic history challenge to us is, can we move beyond that, or is that sort of the natural plateau?

A major part of this reorganization is medical, and involves reconsidering how we deliver medical services through institutions that we run. It is one of the things we can do without external help.

We can alternately go back to the Congress and ask to have the compensation package reconsidered. We can ask to roll back some of the

additions that I identified earlier [slide 12]. (You can all make your private wagers as to how successful that strategy is going to be politically.) We can also ask to reconsider parts of the package that are considered to be immutable.

At the Secretary's direction, we have had an external panel that reviewed our compensation package. Admiral [Donald] Pilling was its chair, and his group recommended we take a look at a number of issues, including whether we should reposition the funds that are currently tied up in the retirement benefit. A good deal of military compensation is deferred, and the most important part of the deferred compensation is retirement. A lot of cash tied up there. Admiral Pilling's panel opened the door on whether we want to consider a different kind of retirement package, one that pays everyone an annuity at age 60. At key points in a career, where people might be making decisions to move out of the military to the private sector, we could tailor additional payments to achieve desired retention. While debate lies ahead of us, I don't want to presume which way it will come out—and I don't even wish to forecast that it will necessarily reach a conclusion within the limits of this administration's tenure.

Let me leave two thoughts with you in terms of how we see managing costs of the Department so that the future does not repeat the recent past [slide 13].

First of all, we must pay attention to demand. That is a challenge to a community that has largely worried about how we staff a volunteer force—how do we motivate people to stay and perform well? We need to move to a greater emphasis on why we need the number and types of people that we think we need. Could we perform the tasks differently, replacing one for one with civilians, for example? Second, are we prepared to entertain fundamental—not just small, but fundamental—changes in the compensation system?

Thank you.



STANLEY A. HOROWITZ (IDA): I wasn't going to ask the first question this time but I was wondering, regarding the growth in medical costs, are the projected increases in the United States similar to what's expected in the rest of the industrialized world, and if not, are there things that we should learn from them or that they should learn from us?

HEFFLER: Let me take a stab at that. There's an interesting thing that comes up when you compare the United States to other industrialized countries. In the United States, we spend a much higher proportion of our economic output on health care. We're at 16 percent, and though I'm not sure what the second-place country is, I think they spend in the neighborhood of 10 or 11



percent. However, when you look at the difference between the rate of growth of health care and economic growth, this gap is actually pretty consistent across countries. It's not like the United States is growing and everyone else has been able to stabilize their share. Even when you look at countries like Canada and the United Kingdom, you see similar trends.

What is interesting—and I won't even start to proclaim to know all the literature and studies in this area; it's not something we spend a lot of time on—is that there are such diverse differences in the health care systems across all these countries and how care is delivered that it sometimes is difficult to compare countries to the United States.

We've been working some with OECD [Organisation for Economic Co-operation and Development] in trying to help them as they tried to standardize how health care information is recorded and reported and described. Some of those comparisons you are asking about are tough to actually make, as apples to apples comparisons.

Take something as simple as hospital spending. You'd think we know what we spend on hospitals, but what other countries define as hospital spending can be very different than what we define as hospital spending.

That's an area that needs to be improved and that's an area where the OECD is spending a lot of time.



DOUGLAS S. MEADE (University of Maryland): A question for Steve. Do you count DOD health expenditures in your national health accounts? If you don't, how would that affect the percentage of GDP?

HEFFLER: We do. They are included in the history, and they are actually a very specific line item in our historical estimates. We spend a lot of time working with the folks at the DOD to align those estimates with what's being reported as spending, to align them with the definitions in the national health expenditures.

When it comes to projections, as I mentioned, we take Medicare and Medicaid as given inputs. We don't do that with all the other Government programs. We lump them all together and project them at a very aggregate level. That could be an area of weakness in what we're doing, but one of the

interesting things that happened not too long ago—and this is part of the reason we do it this way—is that we actually met with some folks in the Defense Department, and we found out they were using some of our numbers to help drive the projections of what they thought was happening with health care. We were using their numbers and they were using our numbers. We had kind of a vicious cycle going there. We tend not to get into the detail in the projections that we do in the historical estimates but they are included in both estimates.



JEROME BRACKEN (IDA): Dr. Chu alluded to this issue and so did the first speaker. Have you made any estimates of what will happen in Medicare Part B in terms of high-income people opting out of Medicare and going to private insurers, or has anyone studied this? The high-income retired officers will be facing this decision.

MUSSEY: Part of our baseline projections do assume that a certain proportion of people will drop out of Part B due to the higher premiums that they would have to otherwise pay. Off the top of my head, I can't give you exact figures, but it's a relatively small percentage that we believe will drop out.

CHU: I think this is all new territory in terms of what the behavioral changes will be, and it will intersect with something we unfortunately don't know all that much about, which is the question of what private-sector retirement health care alternatives retired military personnel face.

We know what they currently have; we have aggregate numbers on coverage. What we don't know is what their retirement from second career rights might be, whether that's as a Federal civil servant, for example, which might turn out to be a better deal for them than some of these other plans.



JERRY PANNULLO (OSD(PA&E)): Dr. Chu, it seems that very often when the Department of Defense advocates for a compensation change, the Department's representatives that go to Capitol Hill are far outnumbered by advocates who oppose such a change. I wonder if you could talk to the challenges that the Department faces in these cases?

CHU: We've been quite successful in proposing restructuring the pay table over the last 5 or 6 years, even though that was initially met with some skepticism by some members of Congress. We do have support for some kinds

of pay changes. You are really speaking to what happens when we inflict a fair amount of pain on a community, in other words, through changes that are viewed as negative, such as removing a benefit or charging a higher price.

I do think the Department's view is that there will be a long-term dialogue with the country as to where it wants to be regarding these benefits. But to respond to an issue that was raised here about where the defense health budget is going, there are internal forecasts—which we've made a big point of in the testimony—suggesting that if we don't change anything about the rules of the game for all parts of the DOD health benefit, it will go from being 7.5 percent of this year's budget to 12 percent of budget by the middle of next decade.

No one thinks that is really sustainable and, of course, those projections all assume the defense budget will maintain its real value at today's level. There are those who question whether that is going to persist, particularly given the forecasts that my colleagues talked about. Something has to give.

We do not see this as a 1-year question. I think our strategy is to try to see if we can't get people to engage over the longer term, to not allow the system to simply break. I am delighted to report that, privately, members of both sides of the aisle agree something needs to be done and that this something is more fundamental. Maybe proposing these changes in an even-numbered year was not the best strategy we could have selected, but if you want to prepare for an odd-numbered year as the year in which to accomplish this, you almost by definition are stuck with starting on an even-numbered year. I don't mean to sound like the Boston Red Sox fans here. We should wait until next year and let's see what happens.

KAREN W. TYSON (IDA): I'm intrigued by your focus on demand as a determinant. It seems the combatant commanders have increasing power in terms of acquisition. Are you seeing anything similar in the manpower area, and how would you and OSD influence demand?



CHU: We have taken the first Stalinist move by proposing a different plan. That's really the heart of the military civilian conversion effort. I should say, all joking aside, that the individual military services with one exception all accept the view that either they have to work on containing labor costs or they will be mortgaging their long-term future. So in two cases, those of the Navy and the Air Force, the services have committed to outright reductions in the number of personnel and the Navy, I think, has a track record of actually achieving those reductions, and in fact, to some extent, of running ahead of plan. I don't know whether CNA [the CNA Corporation] should get some credit here for that or not.

So I think there is a different outlook within the Department at the top level. I don't want to be naive. In some of the cases, the degree of commitment does not descend too far into the ranks, especially to those affected by these reductions. It is still very much a set of changes that are essentially decided at the macro level. It's not the product of what we would see in the private sector, where individual decisions driven by market forces about what a more efficient solution should look like lead to reductions in labor demand by the enterprise. It's being imposed from the top, saying, "Okay, we need to get this down," and then worked out through a series of bureaucratic decisions.



I think one of the questions for the Department is whether we can find mechanisms that would impart the kind of arrogated discipline as the marketplace exerts in the private sector. We're trying one in the health sector. We are in the process of putting all the hospitals, and clinics, eventually, on a prospective budgeting system, which is the same way Medicare pays civilian hospitals. Military hospital budgets up to now have a largely historical bias—there's a great deal of weight put on what a hospital got last year and why they got that.

We have internally gone through and priced the output of all the hospitals at prices we would reimburse the private sector for that care. Some hospitals are very efficient. They make a profit. Some hospitals, you know, you want to sell them quickly. It's somewhat a function of size, but not perfectly so. To some extent, you can explain the variation by the size of the enterprise, which, I think has [caused] the Air Force to move out of the business at some of its smaller hospital locations, and to rely more on the private sector.

But, it's a 4-year cut, so people have a chance to practice. But, the future in 2 years will be that military hospitals are paid the same way civilian hospitals are paid. We hope we are giving discipline to the people and, of course, the bureaucracy has to respect that same discipline. In other words, we cannot have—with due respect to our comptroller colleague here—we can't have a comptroller come in and take the money away if the hospital succeeded in having its costs be less than the reimbursement rates because our position is "no, that's yours, you get to keep it," so to speak, and that has to be the reward. If we destroy that reward, I'm confident we cannot, in fact, [indiscernible]. Can we find other mechanisms like that so the people at the deck plate level really understand to ask: If I had to, how could I do this task more efficiently? Give them the incentive actually to achieve that result, which is, in my judgment, largely absent in the present structure.



[Recess]

DRIVERS OF DOD COST GROWTH: FUEL

Guy F. Caruso
John L. Rafuse



JERRY PANNULLO (Director, Economic and Manpower Analysis Division, OSD(PA&E)): This is our second panel on DOD cost drivers. This one will focus on fuel and we have two experts in this area to talk to us today. The first is Guy Caruso. He is the administrator of the Energy Information Administration, which provides policy, independent data, forecasts, and analyses regarding energy. He has also served as the executive director of the Strategic Energy Initiative Project under the Energy and National Security Program of the Center for Strategic and International Studies as well as the director of the National Energy Strategy Project for the United States Energy Association. He's also worked for the Paris-based International Energy Agency and the Central Intelligence Agency. He has a master's degree in public administration and a master's degree in economics.

The second panelist in this section is Jack Rafuse. He is an independent consultant on energy, trade sanctions, security, and related matters. He previously worked for more than 25 years with Union Oil Company of California (Unocal), an international oil and gas company. His responsibilities included corporate planning, regulatory economics, issue analysis, and government affairs. Prior to joining Unocal, Dr. Rafuse worked at the Center for Naval Analyses, the Department of the Navy, the White House, the Office of Management and Budget, and the Federal Energy Administration. His Ph.D. is from the University of Notre Dame.

Mr. Caruso will speak first.

GUY F. CARUSO (Energy Information Administration): Thank you. Good afternoon, ladies and gentlemen. It's a pleasure to be here. I know you've had a lot of economists imposed upon you today, so I'm afraid you'll have to suffer one more. Jack is a real oil man. He's actually bought, sold, and negotiated deals. I've just been an analyst.[9]

[9] Appendix H contains copies of the material that accompanied Guy Caruso's presentation.



Jerry mentioned the CIA [Central Intelligence Agency]. I came to the Langley headquarters almost 40 years ago from the University of Connecticut. I had taken an interest in energy, particularly international oil, as a graduate student, and in those days the CIA was able to come on campus and recruit. They asked if I would be interested in coming and doing analysis on Soviet oil. I came here in 1966, and they said their number one concern was having Soviet Union oil flood the world oil market. At that point, the price of oil was $1.50 a barrel. We've seen a lot happen since. I became the Middle East oil analyst at the agency probably about 5 years after I arrived, around 1970.

Someone made a determination that maybe we shouldn't be spending all of our resources just looking at communist countries so what was then the Office of Economic Research established an international oil branch; I was lucky enough to be sort of in on the ground. I was there when there was the takeover by Qadhafi in Libya in 1969, then the Arab oil embargo, and later the problems in Iran.

Over the last 35 years, you could see the kind of volatility that the world oil market has gone through and almost every one of these shocks to the system have been external, whether it was war or some geopolitical event. Very few of the shocks to the oil system and energy markets have been pure economics, but, indeed, we're in one now.

We're in a world oil market that's largely driven by the economics, [in other words] the fundamentals of supply and demand, although geopolitics certainly is playing an important role.

The Energy Information Administration (EIA), which I've been asked to head up, is responsible for all the data collection, analysis, and forecasting for the U.S. Government. I will present our latest outlooks.

One thing I've learned in 40 years of trying to predict the world oil market is it's a humbling experience.

In 1977, just at the beginning of the Carter administration, the CIA projected that Soviet oil would collapse and they would become net importers and that Saudi Arabia would have to produce somewhere between 18 and 22 million barrels a day of oil. A lot of our analysis in those days was actually on the right track but things didn't quite turn out the way we thought they would.

Nevertheless, at EIA, we try to project what's going to happen in the world oil market on a monthly basis. About the second Tuesday of every month, the

EIA comes out with its short-term energy outlook. This is our latest outlook of where we think prices and supply are going.

As you can see, our thinking is that after a steady rise in this last 4 or 5 years, prices have probably peaked and will decline but still stay relatively high, according to this outlook, averaging about $70 a barrel. It was September 7 when we published this. Since then, prices have fallen by about $15 a barrel, so we are seeing a greater softening of the market than we expected.

I could go into more detail about that, but this softening is largely driven by two things. The first is that the gasoline demand has passed its peak and we've gotten through a difficult summer with respect to changing over to ethanol-based additives from MTBE [methyl tertiary-butyl ether]. Secondly, we haven't had any hurricanes affecting supply yet this year, and most of the refineries damaged by Katrina and Rita of last year are back online and operating pretty much at full capacity.

I think the main point is that we think prices are going to stay relatively high in the near term. Let's put that into perspective. For most of the past century, the average real price of oil has been $20 a barrel. As I said, it was around $3 per barrel in 1966. Even when you bring it up to 2006 dollars, [the average price over the past century] is about $20 per barrel.

The main reason [for high near-term prices] is that there's a lack of spare capacity in the world. For most of the nineties and even the eighties there was substantial excess capacity; we used most of that up in the early part of this decade. For the last couple of years, we have had only about 1 to 11/2 million barrels a day of spare capacity. To put that in perspective, the world is using 86 million barrels a day of oil. So that's 2 percent.

We've got this massive global oil industry operating at 98 percent of capacity, and if there's one single factor that's driving this market, it's this. We do expect this will start to change over the next couple of years, but for now it's the main reason we think prices are going to stay high.

How did we get here? By "we" I mean the analysts as well as the oil industry. We had a huge unexpected development beginning in 2003, but 2004 was the key year when we saw world oil demand grow by 3 million barrels a day, which is about 4 percent growth; this growth in demand was led by China, but the United States was also a major contributor.

We used up most of the spare capacity to deal with this sharp growth in demand that year. Then, since 2004, we've had relatively strong demand growth in 2005 and a little bit less so in 2006. That compares to the nineties when we were averaging a million barrels a day per year growth.

The other cushion to dealing with supply and demand is inventories or oil stocks. The combination of the Venezuelan strikes of late 2002 and the beginning of 2003 together with the start of the Iraqi war affected the inventories on a global basis. You can see in that chart in the latter part of 2002, 2003, and 2004, inventories were at the lower end of our 5-year mid/max range. We're now recovering a bit with inventories back towards the center of the normal range, but, again, not enough to really put downward pressure on prices until very recently.

We are going to see some investments that have been made as a result of these high prices come to fruition, specifically deep water finds in Angola, Brazil, the Gulf of Mexico, and the United States, which you will probably read about in upcoming weeks. There's been a huge find by Chevron in the deep water Gulf of Mexico and others, such as the Caspian countries of Azerbaijan and Kazakhstan. Canadian oil sands will make an important contribution, but there is a natural decline rate in older oil fields, and you can see to the right part of this graph there are a lot of countries with declining oil production and, therefore, you not only have to add new capacity to meet increased demand but you also need to make up for that decline rate that naturally occurs in all oil fields.

U.S. consumption of petroleum has been fairly flat in 2005 and 2006. We do expect there will be some increase in 2007 based on expectations of economic growth and industrial output.

We used the Global Insight projections for GDP and industrialized output that largely drive these numbers, and they have a relatively optimistic view of the U.S. economic growth as I'm sure you've heard. U.S. crude production has been on the decline for a number of years. It peaked in 1972.

We were expecting a turnaround in coming on stream with the U.S. Gulf of Mexico projects, Thunder Horse from BP, and the Atlantis Shell project. You may have heard that the Thunder Horse project and BP have now experienced a setback in that upon conducting the initial production testing, they discovered that damage from Katrina and Rita of a year ago were more extensive in those areas close to the ocean seabed, which are where much of the production processing facilities and deep water wells are located. BP has determined that they will have to completely replace that production facility on the seabed even though they had previously thought they would be able to get by with just making repairs. This is going to delay that project by about a year. That wave to the right there, which we expected to include about 200,000 barrels a day of Thunder Horse production will now be delayed to 2008.

So it's just another example of how complicated it is to bring on new production in the kind of environment that we're operating in now with very deep water, in this case.

Gasoline prices, as we're all happy to notice, are down probably 50 cents from their peak in late July and early August.

This was our latest outlook, which we will now be revising downward because the decline in gasoline prices was sharper than we had expected. Nevertheless, we don't expect gasoline prices to go below $2 a gallon in the near term, and for 2007 we're saying $2.50 per gallon. We may lower our estimates a bit but clearly we're still talking about relatively high prices for crude oil and gasoline and diesel fuel, as I indicated at the beginning, especially in commercial vehicles.

We also track natural gas, especially this time of year as we prepare for the winter. The good news about natural gas is that we have very strong natural gas storage this year. We're coming out of the summer with extremely high storage rates, so we should be able to meet any conceivable weather-induced spike in demand for the winter of 2006–07. We do expect some increase in demand as shown here in 2007.

Most people don't pay much attention to their natural gas bills, but we've had sharp increases in natural gas prices as you've probably noticed in your total heating bill. However, we do think the average price of natural gas will come down a bit this winter compared to last year, which was, of course, high as a result of the damage done to natural gas production and processing by Hurricanes Katrina and Rita. We're looking at about $8 per thousand cubic feet on average this winter and next year.

Over the long run, we think that we will not be going back to where we were, in other words to the $20 per barrel average real price of the twentieth century.

We have revised our long-term price of oil up by about $20 a barrel since we published our 2006 long-term outlook. We're now thinking $50 will be the average world oil price, and that's mainly for the following reasons. First, the investment pattern we're seeing among those countries with reserves, particularly the OPEC [Organization of the Petroleum Exporting Countries] countries, is that they appear to be investing at a pace that would keep supplies just about equal to demand. Therefore, we think their intention would be to keep oil prices around $50 in real terms. We've looked at high and low price cases as well.

The other factor that's driving prices in our long-term view is lack of access. Currently, about 80 percent of the world's oil reserves are under national oil companies' controls. You can't explore for oil in places like Saudi Arabia, Kuwait, and other countries around the world unless you are the national oil company. That probably isn't going to change. We're seeing even more resource nationalism in places like Russia with [President Vladimir] Putin bringing control of both oil and gas back from the private companies towards the

government in Moscow. Lesser examples of that are true in Venezuela with [President Hugo] Chávez. In addition to his flamboyant political speeches, he is also changing the rules of the game for those companies that have invested in Venezuela by increasing the tax and royalty rates; we think that in the long run, this will tend to reduce the amount of oil that is available from Venezuela.

We've looked at both low and high price cases as well because of this great uncertainty, and in our more detailed outlook, which is available on our Web site [http://www.eia.doe.gov/].

There are two main points to be made about world energy markets over the next 20 or 30 years. First, the main growth will be seen outside of the industrialized countries. It will be in the developing countries. You can see that they will overtake the OECD [Organisation for Economic Co-operation and Development] countries, in this case, sometime in the middle of the next decade, and they will be by far the largest body of energy consumers in the world by 2030, led by non-OECD Asia, which is shown in that white part of the bar on this slide. That's heavily dominated by Asia's consistently substantial increases in demand for energy.

Because of the higher price of oil in this outlook, we do see oil losing some market share to coal and natural gas. Again, that is because India and China are heavy users of coal for electric power generation and industrial processes. So, we expect that they will shift a bit away from oil and towards coal and natural gas. Renewables will grow, but they continue to be less economic than fossil fuels, and we don't see that changing unless Government policy changes substantially.

On the world oil market we see steady growth. We're seeing about 86 million barrels of oil today. We think that's going to go to somewhere in the range of 115 to 120 million barrels a day. We'll need substantial increases in oil from OPEC countries, in particular. The largest growth is OECD, Asia, China, India, and other developing countries.

Where is the oil going to come from? About two-thirds of the world's proved oil reserves are in the Middle East. Canada, with its oil sands, has enormous potential, and we forecast substantial growth there, but most of the growth will be from the OPEC countries, particularly those in the Persian Gulf region.

The other thing that higher prices bring on is unconventional oil. As I mentioned, there are oil sands from Canada, heavy oil, mainly in Venezuela, coal to liquids, and gas to liquids, all of which will see increased production. The light blue bar at the bottom of this slide goes from almost nothing to about 12 million barrels a day in 2030, which will be about 10 percent of the world oil demand. Clearly, we need strong growth in OPEC and non-OPEC production as well. I won't go into a lot of detail in the interest of time, but the

$50 oil does bring into play a lot of new technologies to produce liquids from things like coal, gas, and even the biofuels, which include ethanol and biodiesel, but it's not going to be the savior at today's economics and today's policy.

The natural gas picture is pretty much the same story. The real demand growth over the next two decades lies outside of OECD countries and in the developing countries. In natural gas reserves, there's not much in terms of the security of supply because the three largest holders of natural gas reserves are Iran, Qatar, and Russia. Those three hold about 70 percent of the world's natural gas reserves. Not much optimism there with respect to the geopolitics.

We're going to be importing a lot more gas in this country because our gas supplies aren't keeping up with demand and much of that will be liquefied natural gas from all around the globe. Certainly Qatar in the Gulf and others like Nigeria, Russia, and Norway will be large suppliers.

Thank you very much for inviting me and I won't take any more time so we'll have time for questions and answers.

As I mentioned, everything EIA does, including all the projections are on our Web site [http://www.eia.doe.gov/]. Thank you very much.



JOHN L. (JACK) RAFUSE: Thank you for having me here today. This is a very good topic for us to cover.[10]

I want to begin by covering some points that Guy has already made and go on from there. Slide 1 shows that the topic today is "Drivers of DOD Cost Growth: Fuel." My question is, What's oil got to do with it? We'll take a look at that as we go along.

Slide 2 shows that there's plenty of oil in the world; you can see, as a matter of fact, that 35 years ago we thought there were 550 billion barrels. Since then, we've used 885 billion and now we've got 1,293 billion (1.293 trillion). There's plenty of oil, and that doesn't even count the undiscovered and the unconventional, some of which Guy mentioned.

Slide 3 presents the same thing in a more graphic form; it shows one of Guy's points. Look where the Middle East ranks in this.

Slide 4 presents another way of saying the same thing; note that some of the oil is in inconvenient places, and that there is plenty of it in those places.

Slide 5 highlights possible areas where there could be some kind of instability

[10] Appendix I contains copies of the material that accompanied Jack Rafuse's presentation.

or threat, including threats to access, investment, development, and supply. The United States cannot invest in Mexico, for example, nor in Saudi Arabia or a number of other countries, and there are other possible things that could happen in some of those places anyway.

Slide 6 shows again the excess capacity and why we are in the price position we are in today.

Slide 7 is, again, the outlook for future demand. We're going to need plenty more.

Maybe some of you saw it in the paper the other day, but in contrast to what Guy has just said, which I agree with, noted energy economist Phil Verleger, has said that gasoline could cost about $1.15 by the end of this winter, so don't buy any gasoline until then. If he's right, then we don't have to worry about this today, but let's just go on as if he's not right.

I'm a historian by original training so I want to go back to a couple of things. In 1980, OPEC tripled the price of oil primarily because the Shah of Iran was thrown out and the new regime really pressed OPEC hard to do it. The Shah had always been a price hawk but had never had his way; they won out. So the price of oil went from about $15 up to $40. As soon as that happened, there was a tremendous rush in this country and around the world for new exploration and development. Companies budgeted more. They went at it hot and heavy. A lot of secondary and tertiary recovery efforts were begun. Unocal and Exxon invested more than a billion dollars each in shale oil. People were working on the tar sands up in Canada. There were all kinds of investments in new projects. At the same time, because of the high price, there was a lot of OPEC quota cheating, and at that time there was a considerable amount of excess capacity.

As it happened, all of the excess production capacity belonged to Saudi Arabia, and for the first several years the Saudis put up with the fact that they could never deliver their quota because the market was already filled as other countries cheated.

Finally, in 1985, after giving a series of warnings to their OPEC partners, Saudi Arabia opened up what was then about 3 or 4 million barrels a day of excess capacity. They just turned the taps all the way on. The price of oil went from the low thirties by then down to $10 a barrel and a little bit less. Shale projects came to an end, and a lot of marginal wells were closed in—forever.

All kinds of investment disappeared. A lot of independent producers in this country went out of business because they could no longer afford to produce at that price—and the price stayed there for a couple of years.

Finally, the Saudis decided that their OPEC partners and the investors in some of these other things had learned a lesson, so they cut back their

production and the prices moved back up to about $20 and a little bit more. It was a very interesting time to be in the oil business and listen to people panic about it.

Today, by contrast, we had almost $80-a-barrel oil in the middle of the summer, but OPEC is planning on doing cutbacks if the price gets below $60. They don't think it's going to get much below but they are going to plan on doing cutbacks then. Even at $50 or $60 per barrel, there will be much more investment.

Part of that new investment is due, I believe, to new company behavior. Finally, after decades, companies seem to have stopped using an investment hurdle rate of $20 or $25 per barrel. In other words, they would only invest in projects that they figured would be profitable at prices of $20 or $25 per barrel. At last, they seem to be making investments and taking advantage of greatly improved technology; it seems as if they have changed their hurdle rates to $35 or $40 per barrel.

That difference will allow for a lot more exploration and development and because demand keeps growing and growing and because there is not excess production capacity, we don't have to worry about a sudden drop down to $10-per-barrel oil again.

World demand will continue to rise, but more slowly. And we want it to rise. This is a thing that sometimes we forget about. As more oil is used in the world, and as more energy is used, more and more people are becoming more prosperous or moving out of poverty. Greater energy use is a thing that we want; we want growing demand. At the same time, there will also be greater conservation that takes place at these prices.

That's it about prices. What about the possibility of some kind of cutoff? You hear talk every now and then about how the Iranians hate us so much they'll try to put an embargo in place.

First, I'm going to go out on a limb here and say they won't do it. The reason they won't do it is that it costs a lot of money to run that big country, and it costs a lot of money to pay for international terrorism, to foment instability among neighbors, and to move to nuclear status. Oil and gas are all they have. They are not going to cut us off.

Second, they couldn't do it if they wanted to. The Saudis couldn't do it in 1973. We did it to ourselves.

It seemed in this country that the Saudis did it but all they did was take a few hundred thousand barrels of oil out of circulation. The United States was the only country with price controls in place. Under those price and allocation controls, the Government set the prices the oil companies could

charge, and they told the oil companies how much gasoline to sell, and to which service stations to sell. As some of you might remember, in 1973, and 1979–1980 when price controls were phasing out but still in effect, there were long gasoline lines. I remember reports of one or more shootings as people got so frustrated.

Well, that won't happen again. Even if some country decided they would not allow any of their oil to go to the United States, it would still go into the world oil market.

Prices might go up some if they cut back a little bit of production, but as long as we don't have price controls here, there won't be gasoline lines.

We could do it to ourselves, of course. Politicians last summer were talking about how we ought to put on price controls because gasoline costs too much.

Luckily they are losing interest in it now that the price is dropping. Pogo has told us that, "We've met the enemy, and he is us." In other words, we can hurt ourselves; that was what our politically motivated price controls did to us then.

Those things aside, slide 5 showed some things that OSD and the DOD must think about, two straits in particular: the Straits of Hormuz and the Straits of Malacca. Twenty-five percent or more of the oil that is moved by sea passes through the Straits of Hormuz. Those are narrow straits and you get all kinds of shipping through there. I know that the Defense Department has plans and has done things in the past, but those straits are something that OSD [Office of the Secretary of Defense] must keep aware of. The same is true of the Malacca Straits, which connect the Indian Ocean to the Pacific. Nine hundred commercial vessels a day travel through them, including most of the tankers that deliver oil to Japan or China.

Those straits are shallow and, at one or more places, they are also very narrow—generally about a mile and a half across. So they are kind of tricky to travel and they are also probably the only places in the world where you can still find pirates in large numbers. If somebody gave some of those pirates some kind of proper antiship weapon, a little bit of mischief could make a big difference. Again, because we're not talking about price controls here or anywhere else, blocking the Straits of Malacca would add about 995 extra miles to every tanker trip to get to China or Japan.

That means adding a week or more to every oil tanker's voyage. That begins to put pressure on the number of tankers in the world, and the price of tankers; that's also the kind of thing that could raise the price of oil. The damage would be less significant than if the Straits of Hormuz were blocked but, again, it's another thing to consider.

All that said, and given what our topic is today, slides 8 and 9 present a view of the DOD budget for oil. You can't find the DOD budget for oil.

In slide 8, you'll see a breakout of current dollar O&M [Operations and Maintenance] budgets for all of the DOD for every 5 years since 1970. The selection of years works out pretty well because between 1970 and 1975, the price of oil increased from $1.25 to $10 or $12 a barrel. In 1980 or thereabouts, it went up to $40; in 1985, it dropped down to $10. You can't see any kind of pattern in those numbers; at least I can't, and I can't dig further behind them. Maybe some of you people know where those data are.

Slide 8 shows a smaller number, on the right hand side, for 2000 and 2005; this reflects another data entry from a different source called "Energy Purchases at Cost." In that slide you can see that if that's all the petroleum and lubricants and so forth purchased by the DOD, then it comprises a tiny part of the O&M budget.

Slide 9 shows the same thing, in constant dollars. Again, there's no pattern that would reflect anything to do with oil prices.

Where does all this lead? It leads to the fact that I don't believe, despite the topic of this session, that fuel is a driver of DOD costs, and I don't think there are any data to show that it is.

You've each got a couple of handouts. I'll talk about one of those for a second. First, in terms of fuel use, recent and ongoing basin changes will definitely help by putting troops and equipment in places closer to trouble spots. Second, and even more important, no Congress and no administration is going to shut off fuel to the Defense Department. Third, and interestingly, apparently every service has undertaken studies and programs to increase fuel efficiency. One of the handouts, a two-pager from the Rocky Mountain Institute, makes clear some of the potential benefits and relative costs of fuel efficiency programs. I had no idea, for example, that if you take the B-52s that have been in the service for 40 years or more, and you put today's commercial jet engines in them, you would increase their fuel efficiency—their mileage if you will—by 33 percent and their range by 46 percent.

That's a very interesting two-pager. Amory Lovins, in his full study, made many other suggestions; just don't go for everything he says.

He said, for example, that since tanks are not really in combat all the time, we ought to put very large rubber or plastic external fuel tanks on them. Once they get sufficiently close to combat, he suggests cutting those fuel tanks loose so that they would have a full tank; all the internal fuel would still be there. But then, think of what a target those tanks would make for small arms fire away from the so-called battlefront.

He also said in another part of the study that most vehicles in the services are not ever in combat, so they don't need to be armored. I think we probably learned from Humvees [High Mobility Multipurpose Wheeled Vehicles] in Afghanistan and Iraq, that his "no armor" suggestion is also just plain wrong.

I want to end here with a parable, or even a parallel. It is not about energy conservation, but about deals with other aspects of military missions. When I first came to Washington, about the same time as Guy did, I worked for a Navy Department project office. The project office mission was to invent and get into the fleet equipment for Navy aircraft and aircraft carriers; the equipment was supposed to drive down the nighttime accident rate for carriers to the daytime rate.

It's a good idea, but I was talking to a Navy fighter pilot who was a colleague in the Project Office. He said, "When we're successful and get the equipment into the fleet, it won't drive the nighttime rate down to the day rate. Instead, it will enable us to fly in hideous conditions and weather that we would never think about flying in today. We'll do it; that's what the Navy is for. The energy conservation measures that Lovins proposes would probably enable a B-52 to stay in the air that much longer and to travel further. It's the right thing to do, but it won't conserve fuel. It will extend missions; again, it's the right thing to do.

Thank you very much. I guess we can take whatever questions you have.



CHARLES W. PERDUE (Government Accountability Office (GAO)): My question is for both of you. I think historically there's been a certain relationship between the price of natural gas and petroleum. It seems like over the past couple of years that that relationship has been out of sorts. At least, this is what I've read in "Barron's". I was curious as to your thoughts on that.

CARUSO: We see a divergence in the prices of natural gas and oil. Right now, the price of natural gas is about $5,000 a cubic feet. That's the equivalent of $30 a barrel of oil. It's clearly a two-to-one ratio. The main reason they think that's happening is there's less and less direct competition between oil and natural gas. There's virtually no oil used in electric power. In most of the industrial processes that natural gas is used for, there isn't that much substitutability between oil and gas. The linkage is definitely weakened. We see that continuing. That's why we have a $50-a-barrel oil projection while our natural gas projection is, even in the reference case, only at about [$5,000 a cubic feet]. We think that will continue.



RAFUSE: Natural gas has always called itself the premium fuel, and yet we've never paid a premium for it.



CARL J. DAHLMAN (Office of the Under Secretary of Defense, Personnel and Readiness): I've read articles that say that the estimates of actual reserves in a lot of oil fields are vastly overestimated, and I've seen reports that there have been some companies that have had to adjust their balance sheets because [indiscernible]. I wondered what you think about that.

Another question is: What do you think about the future of nuclear power in this country? We've read about how environmental interest groups are weakening their opposition to the development of nuclear power plants because they are safer than previously thought, and I wanted to know what impact that might have on the future of oil consumption.

CARUSO: I probably didn't state it correctly, but our view is that we're not near peak world oil production. We think oil production will continue to grow. We agree with the United States Geological Survey's estimate of world oil resources. The problem is that resources in the ground aren't really reserves that you can take to the bank and get loans. That's where a lot of the concern in recent years has occurred. That is, a number of companies have had to actually write down their reserves because they were using estimation techniques that the SEC [Securities and Exchange Commission] did not allow.

The SEC requires that when a company reports, say, 50 billion barrels of reserves to its shareholders, it must actually be able to show the geological evidence for those reserves. It's all very understandable. They are protecting the investor.

All that having been said, we think that the resources in the ground are significant even if some of those proved reserve numbers cannot be audited and verified, particularly in places where they aren't required to report to the SEC, such as Saudi Arabia or Kuwait. It's very possible that those public numbers that appear in trade journals are inflated for political reasons. At one time, OPEC was thinking about assigning quotas based on reserves, so the next year all the OPEC countries revised their reserve numbers upwards.

So there's a bit of chicanery going on in those public numbers. We believe USGS [U.S. Geological Survey] numbers are pretty good and that the oil is there, but it is going to require significant investment sometimes in very difficult places to tap, as Jack pointed out, and, therefore, the costs are going up.

To answer your second question, we think nuclear power is in for somewhat of a revival in this country, but even if it's not in this country, it's clearly going to happen

in places like China; South Korea is building some, Japan is building some, and India will probably build some. We think the nuclear industry is gearing up for substantial growth over the next 15 to 20 years.

That being said, there are issues with waste storage, specifically, public concerns about what sites to use for this purpose. But, in the Energy Policy Act of 2005, Congress provided fairly big incentives to build nuclear plants. We provided in our latest outlook the equivalent of nine nuclear power plants over the next decade and the nuclear industry thinks we're grossly pessimistic. They are talking about as many as 30 or 40 new nuclear plants. One hasn't actually been ordered since 1978. It's a big deal.

RAFUSE: Several years ago, Texaco had to write down their reserves several times. Over the past year and a half, Shell has had to do the same several times. Guy's description of the reasons behind this effect was perfect.

Those reserves are now rated as probable reserves, but all the geological information is there. You have to just punch some more holes in them and they will have proved reserves. In 3 or 4 years, those reserves that were written down will come back.

So it's partly a bookkeeping thing and partly a help-the-stockholder thing, but under one category or another, those reserves are there and have been discovered.

CARUSO: To put it in terms of today's headlines, the discovery that Chevron made in the Gulf of Mexico 2 weeks ago, cannot be considered a proved reserve under SEC rules, because SEC rules were written in the mid-seventies using the technologies of the mid-seventies when—I think in 1975, the deepest water you could drill in was about 1,000 feet. They are now drilling in 12,000 feet of water and producing a total depth of 30,000.

RAFUSE: And getting better and better.

CARUSO: There's clearly a disconnect. I don't know for sure, but I think SEC may have to rethink that.

HAROLD J. BRUMM (GAO): You cannot burn crude oil in your car's gas tank. Could you talk a little about refining capacity in this country and refining capacities in China and India?

CARUSO: I'm glad you brought that up. In the interest of time, in addition to the productive capacity of crude oil, the other thing that suffered from a couple of decades of under-investment was refining capacity, globally and in the United States. We haven't built new grassroots refineries since the mid-seventies.

The Chinese are growing so fast, their refinery capacity is not keeping up, so they've been importing in some cases refined products, which has put pressure on the refined product market.

We do see a continued tightness in refined product capacity, at least through the next several years, but as Jack pointed out, at these higher prices, we are now seeing new projects announced.

Most of them are outside the United States. So far and to the best of my knowledge, there has been no new refinery proposed for the United States that has actually made it past planning stages. Some people have talked about it. All the new capacity in the United States in the last 20 years has been in the form of additions to capacities at existing sites, in other words, adding a new unit at each site. That's what we're forecasting now for the next 3 to 5 years.

We've got some projects, but they are all at existing facilities, so we're probably not going to have enough new capacity to keep up with demand, and we'll probably have to import more refined products, which one could look at as an issue from the point of view of security.



BRUMM : Has anybody made an attempt to break down the recent run-up in gasoline prices at the pump, break it down between what's attributable to refining capacity limitations and an increase in crude oil?

CARUSO: We do it every month. We actually publish weekly gasoline and diesel prices. On our Web site, there's an image of a little gas pump that shows the total average retail price of gasoline, the average retail price of diesel, and how much of it is crude oil, how much of it is taxes, and how much is distribution.

It's a little bit hard to give you an answer, but for the last year or so the run-up has been largely in refinery margins and profits because the increase in gasoline was far more than the increase in the crude oil. In 2005, it was more balanced. Almost all of the increase could be accounted for by the crude oil cost.

Right now, the interesting thing is that wholesale prices have come down 82 cents a gallon since late July and early August. Up until last Monday, when we released our last gasoline price summary, only 50 to 55 cents of that price reduction had been passed along from wholesale to retail. Normally, all of it gets passed along over time. It does take time. I know we all think it's happening too slowly. Our estimate is that we have another 20 to 25 cents to go at the retail level unless something intervenes.

MATTHEW J. KASTANTIN (OSD(PA&E)): Related to that specific point on predicting retailer margin, on one of your charts I thought I saw in early 2007 there was a prediction for an abnormal spike in the retail and refinery margins looking forward. Is that more a function of weather in the winter months?

I thought it was a disproportionate jump, and I was curious about it.

CARUSO: I'll have to look.

RAFUSE: Probably in March—Guy will look it up. It's probably beginning in March when the switchover to gasoline is made and all of the boutique summertime gasoline rules go into effect. It takes a couple of months for the companies to get that new gasoline into all of the places around the country, so prices always go up during that period and every reporter writes a big story about it.

CARUSO: I have the chart. It's exactly right. We have the spike in the summer months of this year. This year was an unusual year. In April there was a run-up of prices. They started to come back down, and then they spiked again because of the switchover from MTBE to ethanol. That was one of the factors. The other one was that we were also switching to summer gasoline, as Jack mentioned, and most of that effect was seen in margins. The crude oil price accounted for maybe 30 cents of that 80-cent change in wholesale price.

PANNULLO: Thank you. We'll take about a 15-minute break. Upcoming is David Walker and, following that, there will be a reception that you will not want to miss.

[Recess]



CLOSING REMARKS

Daivd M. Walker

JERRY PANNULLO (Director, Economic and Manpower Analysis Division, OSD(PA&E)): Our concluding speaker is David Walker. David Walker was appointed as the seventh Comptroller General of the United States in 1998 and has served in this capacity since. In this role, he serves as head of the United States Government Accountability Office, GAO, a legislative branch agency whose mission is to improve performance and ensure the accountability of the Federal Government for the benefit of the American people.

Comptroller General Walker has more than 20 years of private-sector experience and more than 13 years of public-service experience, including as a partner and global managing director of the human capital services practice for Arthur Andersen and in various roles with Price Waterhouse, Coopers & Lybrand, Arthur Andersen, and Source Services Corporation.

Comptroller General Walker received Presidential appointments from former Presidents Ronald Reagan, George Herbert Walker Bush, and Bill Clinton, serving as public trustee for Social Security and Medicare and as the Assistant Secretary of Labor for Pension, Health, and Other Employee Benefit Programs.

He is a certified public accountant. He holds a bachelor's degree from Jacksonville University and an SMG [Senior Management in Government] certificate in public administration from the John F. Kennedy School of Government at Harvard University.



DAVID M. WALKER (U.S. Comptroller General): I apologize [for my broken arm]. I'm only one-armed. Please pray for the other guy. I don't know if he's going to make it. To be more serious, I had a biking accident on Labor Day. I have four broken ribs, one dislocated rib, and a broken collar bone. So, I have broken bones but not broken spirit and I showed up because I promised to show up.[11]

I see you've had some good people on the agenda. I have the obligatory PowerPoint presentation, but it won't be death by PowerPoint. I'll cover some

[11] Appendix J contains copies of the material that accompanied David Walker's presentation.

of this but I'm not going to cover everything that's in the slides. I want to save plenty of time for Q&A. I understand we're supposed to wrap up at 4:30.

First, the United States' financial condition is much worse than advertised. We face large and growing structural deficits due to known demographic trends, rising health care costs, and revenue gaps that will exacerbate as we move ahead based on current policy paths.

We also face rising public expectations. We face certain trends and challenges that have no geopolitical boundaries. These include trends such as combating terrorism, fighting infectious diseases, promoting stable capital markets, and protecting the environment.

You can't address these as a single country. You have to address them globally and multi-laterally. No country can or should go it alone today. You can't do so for long, even if you try. We have additional resource demands for Iraq, Afghanistan, and the global war on terrorism. We also have numerous Government performance and accountability and high-risk areas.

Our Defense Department is number one in fighting armed conflicts. However, it gets a D grade, rated on a curve and giving it the benefit of the doubt, on economy, efficiency, transparency, and accountability. Billions of dollars are wasted every year due to longstanding systemic problems that have yet to be fixed.

We have outdated Federal organizational structures, policies, and practices. That's just to try to get your attention. We are on a burning platform, as one would say, in the change management business.

Budgets have changed dramatically in the last 40 years. You can read that yourself. We've gone from a Federal budget dominated by defense to one in which defense amounts to less than 20 percent of it. That includes Iraq, Afghanistan, and global war on terrorism costs. Medicare and Medicaid didn't even exist in 1965. Now they are 19 percent of the budget. Interest cost is the same as 40 years ago but will not be for long. We're adding debt at record rates and interest rates are headed up. Forty years ago when Congress decided how to spend the people's money, two-thirds of it was within their discretion. Now it is down to 39 percent, and is going down every year.



Discretionary spending includes defense, homeland security, education, transportation, infrastructure and GAO—obviously all very vital functions. Some of these functions are expressly enumerated as responsibilities reserved for the Federal Government in the Constitution, and yet they are getting squeezed.

Some of the items that are on autopilot, now representing 54 percent of the budget, are not in the Constitution of the United States, and yet they are squeezing out other items that are. That is a fact.

This slide shows the trend in deficits and surpluses as a percentage of the economy, meaning that inflation is taken out of this picture. You are economists; I'm a CPA [Certified Public Accountant], but I know a little bit about economics. By the way, these numbers are in billions so add nine zeroes. It's a lot more impressive when you write the zeroes out. The red represents the "on budget" result. The blue is the "off budget" result, primarily Social Security. The black is the unified result. If you look at how we keep score in Washington, it does not provide a full and fair view of where we are and where we're headed. We have three bases of measurements. The number that everybody talks about is the unified budget deficit of $318 billion. That's basically the cash-based budget deficit. That's what we had to go out and borrow.

Guess what? We spent all the $175 billion off-budget surplus that we had. We replaced it with trust fund debt, which we call an asset backed by the full faith and credit of the United States Government. We hold it out as being a hard asset that's going to be there to be able to pay Social Security and Medicare benefits, but we don't even call it a liability on the financial statements of the U.S. Government.

Government took the people's money, and spent the people's money and then put back an IOU in a so-called "trust fund," which isn't really a trust fund according to Webster's or fiduciary law. The bonds are guaranteed as to principal and interest. We need to look again at how we account for that. The operating deficit on a cash basis was $494 billion. Last year, we had the highest accrual-based deficit in the history of the United States, $760 billion. And we're not accruing for Social Security and Medicare other than claims incurred but not reported, claims reported but not paid, and benefit checks that are due and payable today. This is the highest deficit in the history of the United States. In the last 5 years alone we've gone from liabilities and unfunded commitments of $20.4 trillion to $46.4 trillion, primarily due to Medicare.

The Medicare prescription drug benefit alone, arguably the most fiscally irresponsible act in the last 40 years, cost more than $8 trillion at the time it

was passed. That was more than the entire outstanding debt of the United States resulting from the combination of all our operations since 1789. That one bill cost more than the entire Federal debt, both public debt and debt held by the trust funds.

If you count $46 trillion, and benchmark against per capita per household, meaning you benchmark it against median household income, and personal income per capita, you get some pretty ugly numbers.

These numbers are going up every second of every minute of every day because we're continuing to run deficits. Demographics are working against us, and the miracle of compounding works against you when you are a debtor. It works for you when you are an investor but we're the world's largest debtor.

Over 90 percent of our new debt is being financed from overseas. That's good because they have extra money, and we don't. For the first time since 1933, Americans spent more money than they took home; 1933 was not a good year for the United States or for the world. We have four deficits: a budget deficit, a balance in payments deficit, a savings deficit, and a leadership deficit. That's a nonpartisan statement and a bi-partisan problem.

This slide shows how we keep score in Washington. This here is the CBO [Congressional Budget Office] baseline. The black line shows revenues as a percentage of the economy, meaning inflation is taken out. The bars reflect spending as a percentage of the economy, again, meaning inflation is taken out. This here reflects CBO's baseline assumption. False and misleading is how I would describe this, but this is how Washington keeps score. Why? Because it assumes that all tax cuts will expire in whole, on schedule, and that none will be extended at all. It assumes that discretionary spending will only grow by inflation. It also assumes that the alternative minimum tax will not be fixed. All three assumptions are totally unrealistic. We're not going to get better until 2015. Things are going to get gradually worse. But who knows? We may not be here in 2030, so don't worry about it; it's long range, it's based on assumptions.

Here is alternative two. All tax cuts are extended and made permanent. Discretionary spending grows by the rate of the economy. This is an Argentina scenario.

We have a choice to make, are we going to get our act together like New Zealand did, and are we going to do it soon? Or are we going to hit a wall? How long will others be willing to continue to finance our excess consumption at the rates that they are today.

We'll hit a wall. It's only a matter of when. We've got to start making some tough choices. Obviously, we want tax policies and other policies that



will encourage economic growth, but all of you have studied economic history and hopefully are proficient at math, and there's no way we're growing our way out of this problem, no way.

As we all know, not all tax cuts stimulate the economy and very few tax cuts pay for themselves. By that I mean that you generate more gross revenues after you've done a tax cut than you would have had otherwise. Dramatic reductions in marginal tax rates, dramatic reductions in tariffs, and other things like that can generate more revenue, but most of the things we've been doing don't fall into these categories. We're going to have to impose budget controls but tougher ones, change our legislative processes, and we're going to have to reengineer what the Federal Government does, and how the Federal Government does business, in order to realign ourselves for twenty-first century challenges.

Now, why should the Defense Department care about that? Because it's the biggest part of the discretionary budget. Defense is in the Constitution of the United States. It's a vitally important function, but it cannot operate in a vacuum. Right now, the Defense Department's position, with regard to its wants versus its needs, and affordability versus sustainability, is out of whack. The crunch is coming and we need to prepare. Every dollar that we waste on a want today is a dollar we may not have for a need tomorrow.

Now, one thing we don't have in this country is key national indicators—safety, security, economic, social, and environmental indicators—to help assess the nation's status, position, and progress, over time, relative to others. We spend $2.5 trillion to $3 trillion a year. We issue thousands of pages of regulations a year. We grant tax preferences equal to between $700 billion and $800 billion a year. And yet, we have no idea whether they are working or not in most cases.

In today's Government, if you want to show you care about something, you throw money or a tax preference at it.

We need key indicators that will help us understand how we're doing. Other countries have them. Based on the latest OECD statistics across these categories, we are 16th out of 28. That's called a below average outcome.

This is our strategic plan for serving the Congress and the country. That side of this slide represents themes and trends and challenges that have no geopolitical boundaries, for instance, national security, meaning changing security threats in a post-cold war environment.

As I said before, more and more issues in today's world are multilateral or global. They involve cooperation between levels of Government and between the sectors of the economy, public, private, and not-for-profit, both domestically and internationally. We have to partner for progress. We can't go it alone with limited resources.

This is GAO's high-risk list. The DOD is prominently represented. It's not good to be prominently represented on this. The DOD was created in 1947, almost 60 years ago, and yet it has 14 of the 26 high-risk areas, and many have been on the list for years.

The DOD is making progress, but much remains to be done. Doesn't that sound like a GAO report? Just fill in the blank. Progress has been made, but much remains to be done. This is a document that I commend to you if you have not read it, especially if you care about your country, your kids and your grandkids. It's on our Web site [http://www.gao.gov/]. It says two things based on GAO's work over many years. I've already told you it says that we're in tough shape financially and fiscally going out.

The problem is not the short term. We get a false sense of security by looking at the short term. The problem is the long term. We have the wrong metrics and the wrong goals. When you are heading over a cliff, if you slow the car down to 50 miles per hour from 100, you are still going to go over the cliff. We need to start recognizing that reality and we've got to start getting serious soon.

The other thing that this document says is that the vast majority of the Federal Government's policies, programs, organizational structures, compensation, and classification systems, and so forth, are based in the 1940s through the 1970s. The definition of disability in 1947 is an example. Another is that the organizational model for Federal Government compensation classification is based upon management models, technologies, transportation systems and compensation practices of the 1950s. Medicare is based largely on Blue Cross Blue Shield in 1965. The tax preferences for health insurance, and our desire to encourage employers to help employees in such a way, are based in the 1940s. Finally, some of our weapons systems are still based on cold war systems.

These are the categories. It's very diversified, and very fair: spending, organizational structure, tax policy. It includes a series of basic questions that have never been asked. Why in the world do we do this? What were the conditions that existed? What were we trying to accomplish? Is it outcome-based? Who else is on the field? What are they doing? Are we working together? Are we successful? Have things changed? Can we afford this? Can we sustain it?

We haven't done this kind of stuff. It is really just Management 101. These are illustrative questions in the defense area. You can read this as well as I can; its illustrative of some of the questions we need asked and answered. These are intended to be thought provoking. We have a lot of ideas on these that we are happy to provide. Come up with options, and talk about pros and cons.

I know you've heard today, for example, about the escalating cost of health care. Health care is the number one fiscal policy challenge of the Federal Government, the number one fiscal policy challenge of state governments, and the number one competitive challenge of American business.

If there's one thing that can bankrupt America, it's health care. Our health care system doesn't have proper incentives, adequate transparency, or appropriate accountability. Without these three things, you don't have a sustainable system.

We have a train wreck in health care. It is eating up more and more of the budget in defense, it's eating up more and more of the budget in the Federal Government. It's eating more and more of our economy up. We're going to have to dramatically and fundamentally reform health care in installments over time.



The Federal Government should lead by example. It should be the model. We should be modernizing, integrating, leveraging technology, developing national best standards of practice, unifying our medical capabilities, linking them between agencies, the DOD, the VA [Department of Veterans Affairs], and so forth, but we're not doing that to the extent that we should be.

The result is that more and more of the budget goes to health care, which means less and less of the budget can go into other readiness areas, specifically weapons systems and force structure.

We did a study, a year ago in July, which showed the average total annual compensation for a member of the active-duty military, including current cash as well as current and future benefits. Who wants to guess how much this was? This is the weighted average annual total compensation cost, just pay and benefits, and not support costs, for paygrades from E1 to O10, meaning buck private to four-star general. I think it was about $111,000. Do you know what the average wage is in the United States? It's less than $50,000. For officers the figure was $156,000, for enlisted it was $104,000. Nobody ever calculated that figure before. We have an All-Volunteer Force today. Is it sustainable? The answer is a big question mark. I'll tell you this. The reserve model is broken; it's badly broken and we're doing work on that now.

One of the problems we have in defense is that we've got these 14 high-risk areas. There are a lot of great people doing good things, trying to make progress, but nobody is in charge. Who is focused full time on transforming how the DOD does business, with the right type of background, with the right type and level of responsibility and authority, with the appropriate degree of accountability and resources, who is going to be there long enough to get something done?



We need a COO/CMO [Chief Operating Officer/Chief Marketing Officer] in the Defense Department. We've recommended it. McKenzie has recommended it. The Defense Business Board has recommended it.

IDA is now doing a study, and we'll see what they recommend. I'm not saying it's a panacea, but I'm telling you if it has been almost 60 years and the DOD still has the same problems, then we've got to do something different.

Here are some of the challenges that we see. One is revising our approach to developing national strategy. We need to employ a longer range approach, a total force and more integrated approach with regard to planning and execution. I've talked to you about the CMO. We've got to revise the organizational structure.

DOD has too many layers, way too many players, and way too many hardened silos. I had an opportunity to be involved in Capstone several years back. I found out that 20 plus units had to sign off on activating and employing 10 reservists—20 different units. That's just an illustrative example. That's money that's being wasted that could be used for readiness and for our war fighters. We've got to emphasize, we've got to understand what resources we have, what we are doing with them, what we are getting for them.

The DOD is the only agency that can't begin to have an audit. Forget it. The last agency in the Government that's going to have an audit is the Defense Department. It's also the biggest single expenditure other than HHS [Health and Human Services].

We've got to revise the DOD's approach to systems development. We've got to change the DOD's compensation practices. We've got to really fundamentally re-engineer the DOD's acquisition practices.

We ultimately have to reconcile unlimited wants from definitive needs based upon a comprehensive threat- and risk-based assessment, based on current and likely future threats on enterprise-wide basis, and we have to think about how much money we're likely to have to get it done. That doesn't get done now, at least not far enough out.

Other countries are starting to do it, including some of our allies. We are a lot more important, a lot bigger, and a lot more complicated than they are, but certain basic rules apply to all defense enterprises.

These are some of the challenges that we have in the acquisitions area, despite the fact that a majority of our efforts, whether they are weapon systems or information systems, take a lot longer than necessary, cost a lot more money, and result in less quantity and in many cases less capability than we expected.

The DOD is paying out 90 percent of eligible performance bonuses. What's wrong with that?

In summary, we have a great country, the best military capabilities in the world, and a lot of really capable, dedicated, hard-working people trying to address all the issues that I just talked about.

They are making progress in a number of areas, some more than others, but it's going to take years of dedicated, persistent attention to address these issues, not just within the Defense Department, but also to reconcile in a macro sense what the proper role is for the Federal Government. How is the Federal Government going to do its business? How are we going to do that in an efficient, effective, affordable, and sustainable manner for today and tomorrow?

We are so far out of whack, we need major reengineering. I honestly think that we have to make a choice between whether or not we're going to follow New Zealand's path or some day suffer Argentina's consequences.

New Zealand in the late eighties, early nineties came to the brink of bankruptcy. They made dramatic and fundamental changes in redefining the proper role of government, division of responsibilities, their measures of success, and who does what. They not only stepped back from the brink of bankruptcy, but they now have fiscal sustainability reporting every 2 to 3

years. The last report came out 2 months ago and they are okay for 40 years. Five years ago, we were fiscally sustainable for 40 years also. A lot of things changed since then; there were some world events and some policy changes.

We need leaders in the twenty-first century who have four attributes. First is courage to state the facts, speak the truth, and do the right thing even though it may not be popular and is counter-cultural. In a government, that's really tough. Government is tough to change because government is a monopoly and thus slow to change.

Second is integrity. We need leaders who lead by example, practice what they preach, who recognize the law is the floor of acceptable behavior, and strive to do the right thing.

Third is creativity. We need leaders who see new ways to solve old problems, who are future-focused, who recognize that we need to partner for progress because we've all got limited resources and authorities. That means within government, between various governments, and also between the sectors including the private sector.

Last, and certainly not least, is stewardship. We need leaders who don't just seek to maximize results today, who don't just strive to leave things better off than when they started, but who also seek to leave things better positioned for the future. Stewardship is a word that used to resonate with people but that is hardly talked about any more. You may or may not agree, but I'm happy to answer your questions, and thanks for having me.

AUDIENCE MEMBER: What's the bad news? [Laughter]

WALKER: Let me tell you the good news. The good news is that America has a history of overcoming major challenges, including unexpected challenges, once it gets serious about them.

We can, we must, and we will ultimately rise to the challenge. My concern is we need to do it sooner rather than later because our risk is increasing all the time. When we're relying upon third parties to finance our excess consumption, that means that over time we're increasing our related risk, among other things.

I'm doing what I can to get the message out and to maximize the chances that, hopefully, we'll slow our bleeding in the next several years. I don't care who the next President is; I'm a professional, not a partisan. However, whoever the candidates are for President next time, they are going to have to start taking on some of these issues and to be willing to do the right thing whether or not they get re-elected. Why? Because I think the future of the country over the long term is at stake.



STANLEY A. HOROWITZ (IDA): It certainly wasn't your only point, but it seemed like you and others who spoke to us today noted that a principal driver of the train wreck is the increasing bill that's going to come due, having to do with health care. You said that you would be happy to share your thoughts on how we ought to try to address that, so I would encourage you to do so.

WALKER: First, there are three areas that I'm going to spend a disproportionate amount of my time on in the last 7 years of my 15-year term, and one is health care. I will give you a response but let me also encourage people that want to know more to go to our Web site, www.gao.gov. You'll see a number of speeches and PowerPoint presentations, including some that deal with health care.



There are things that we're going to have to do in the short term. In that regard, I think we are going to have to, among other things, try to use those Federal Government programs that we have direct control over as a way to try to experiment with some possible ways to move forward with regard to design, administration, cost, and quality.

One of the things we don't have in this country is a set of evidence-based national practice standards. As a result, when you end up having a procedure done, depending upon where you live and where you go, not only the cost but also the outcome varies dramatically, and not necessarily in the ways that it should. Sometimes the procedures that are higher cost end up having poorer outcomes.

There are a lot of things I think we need to do: leverage technology, develop national practice standards, and integrate our health care systems. One of the things that's going on with the Department of Defense right now, which is illustrative of the problem, is that we have four services and three departments, the Departments of the Army, Navy, and Air Force. My son was in the Marine Corps and fought in Iraq. We have three medical systems.

The Defense Business Board recommended unanimously to consolidate and integrate our system. One service stands in the way. The whole thing is absolutely at a stalemate right now.

We don't just need to do things differently within the Department of Defense. We also need to link more and integrate more with the Department of Veterans Affairs.

Who does what, and how do we do it? Congress has to get more realistic. Congress has been mandating expansion of health care benefits in circumstances where people might want it, but we can't afford it. For example, it's one thing when you want to expand health care for active duty or for existing [National] Guard members and Reservists. It's another thing when you want to expand health benefits for people already retired or for people that are employed by employers who already have health care but whose employers would like to be able to offload costs on to the Federal taxpayers.

These aren't popular things to talk about, and it's no wonder we're out of control. We haven't even done Management 101. The Congress is part of the problem. There's absolutely no question. I work for the Congress. I've told the Congress many times that they are part of the problem and are going to need to be part of the solution. The other thing I was going to say about the fiscal situation is people are starting to recognize reality. Things are a lot worse than people thought they were, and we can't continue this path.

I just came from the White House earlier today and whether it's the President, the OMB [Office of Management and Budget] Director, the Treasury Secretary, or whomever, what you will now hear consistently is that yes, things may be getting better in the short term—depending upon what basis of accounting you use, because by some bases they are not getting better—but we have a large, growing and major [problem] that we have to deal with in the long term and we need to get on with it. So that's encouraging because people weren't saying that a year ago.

On health care, we're going to have a discussion and debate in this country on something we've never debated: what level of health care is in our broad-based societal interest to ensure access to for every American irrespective of age, income, and locality? What type of basic and essential services should be included? This includes things like inoculations against infectious diseases, certain wellness services that are cost-beneficial, protection against financial ruin due to unexpected catastrophic illnesses when you are not talking about heroic measures, meaningfully extending and improving life rather than throwing every technology at it in a hopeless situation, and finally, guaranteed access to additional insurance at group rates, which individuals will have to pay for either through wages or otherwise.

We've never had a discussion about that, so, as a result, what we have is large segments of society that doesn't have its basic needs met, so we have huge shifting of costs going on which is not sustainable. For any system to work we've got to have three things: incentives for people to do the right thing, transparency to provide reasonable assurance they will do the right thing because somebody is looking, and accountability in case they do the wrong thing. We're zero for three in health care.



LOUIS A. MARANO (IDA): You mentioned the cost of the All-Volunteer Force. Some people say it's more accurate to refer to it as the "All-Recruited Force." That brings the economics into it. Has anybody ever run the numbers on what it would cost to maintain a military of comparable size in a draft-driven environment?

WALKER: I don't know if anybody has run that yet. I would not be surprised if at some point in time we and/or CBO may be asked to run that. We do have a recruited force. If we also look, we'll see that standards have changed. The recruiting practices are very aggressive; 42-year old grandfathers and grandmothers. Don't get me wrong, 42 is young.

Look at what we're paying for recruiting bonuses and retention allowances. It's unbelievable. When you start looking below the surface it's very revealing.

By the way, I think one of the things we've got to think about as a country—and this may be controversial but it's not a GAO recommendation—is mandatory national service. That's not a draft. It's saying that everybody needs to do something for the country, for at least some predetermined number of years, say 2 years. But, I would define service very broadly to include military service, working in Government, working in the citizen sector, and working in certain occupations in which the country has critical-skills imbalances such as teaching, nursing, and a few other areas that we might need to encourage people to work in.

I think one of the problems we have right now is there's a disconnect. We're more of a "me" society than a "we" society. We've lost connection to a certain extent.

Since I don't have to get elected to my job, I can actually tell you the facts.



JOHN E. WHITLEY (OSD(PA&E)): The DOD has, perhaps belatedly, kicking, and screaming, come to at least some of your conclusions. We have a health benefit change proposal for military retirees on the Hill now. Can you give us a prognosis for that this year and, if it fails this year, for next year?

WALKER: It doesn't look good for this year. I've heard somebody say it doesn't look good for next year. There's a lot of heavy lifting that has to get done, and I think that one of the things that has to happen is that the DOD needs to make sure that all the key players in the DOD have come to the same conclusion—that means civilian and military players—to be

able to help people understand what the consequences of some of these actions are over time.

I realize that in times of war it's tough to do some things politically. Everybody loves the military but there's a difference between whether or not you are serving now and whether you served a while ago. If you benchmark our kinds of programs and benefits against even a Fortune 500 company in many cases, it's very, very lucrative.

Another example is the VA. The VA has eight or nine categories of veterans with different priorities. They will basically serve as many people as they can serve depending on how much money they have and what their capability is. That means somebody who has served a very brief period of time in the military, never saw combat, and maybe served one domestic tour may have access to VA for life.

I would respectfully suggest that we ought to be thinking about whether there are certain kinds of people to whom we ought to have a permanent commitment no matter what it costs. However, we ought to recognize that we ought to book a liability for it, and we ought to rationalize the rest of our commitments.

Everybody and his brother is going to exercise a put option on Uncle Sam if they can. People still think there's a free lunch. Gee, Government has money; Government will pay for it.

As we all know, Government has no money. Government taxes; takes a haircut for administrative expenses; redistributes and/or purchases or acquires; and, in most cases, has to end up borrowing in order to finance excess consumption. That's where we're at.

Other questions? It's 4:30. I think you've got a reception or something. I don't want to stand between you and reception hour. I'll come for a few minutes. Thanks a lot. I appreciate it.

PANNULLO: Thank you, Comptroller General Walker. I thank you all for attending today's conference. I also thank some of the behind-the-scenes folks who made the conference run so smoothly: from the Institute for Defense Analyses, Stan Horowitz and Ayeh Bandeh-Ahmadi, and from the Office of the Secretary of Defense, Soyong Chong and John Whitley.

The conference is closed; the bar is open.

[Conference adjourns]

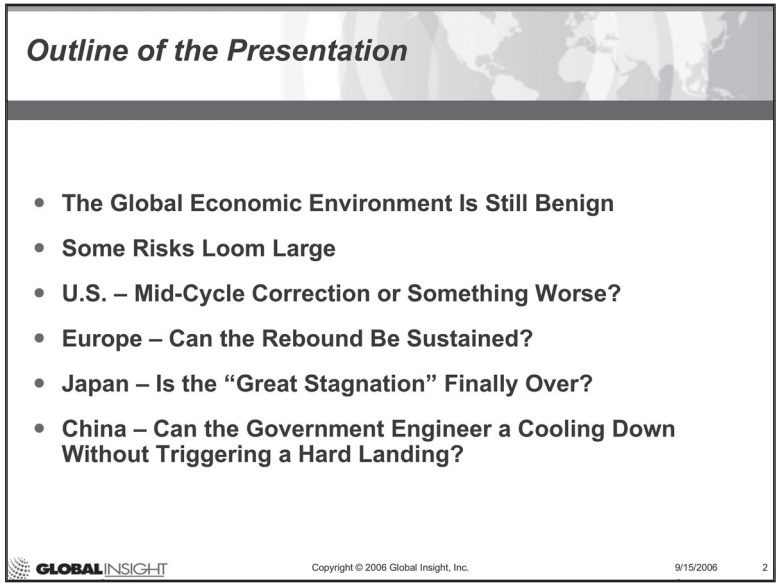




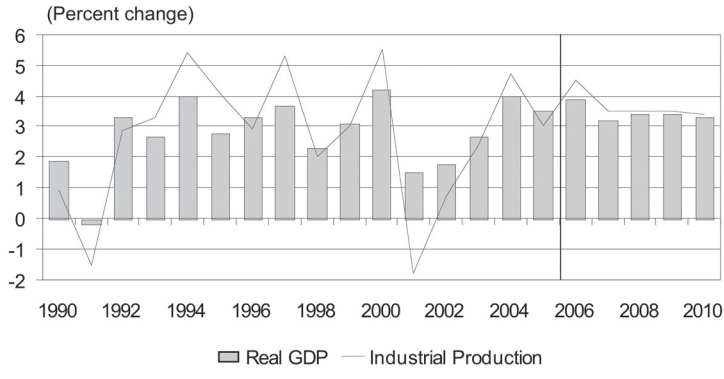
Appendix A

The following material accompanied Nariman Behravesh's presentation.



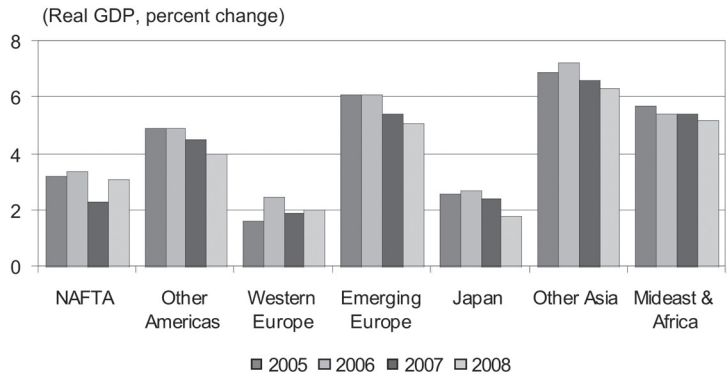


The World's Economic Expansion Will Continue



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The Fastest Growth Is in Emerging Markets



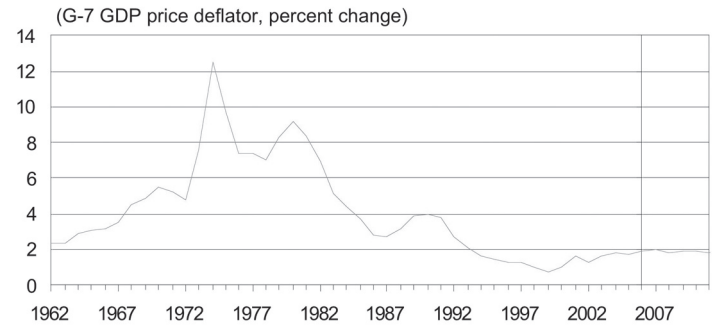
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The Global Economic Environment Is Still Benign

- Inflation is still tame, despite high oil prices
- Monetary policy has become more restrictive, but interest rates are still low
- Fiscal policy is also fairly loose
- Exchange rate volatility has been remarkably low – and is likely to remain muted
- Developed economies have been able to shrug off terrorist attacks – thanks to large diversified economies
- Perhaps the most notable trend of the last few years has been the resilience of the world economy in the face of multiple shocks

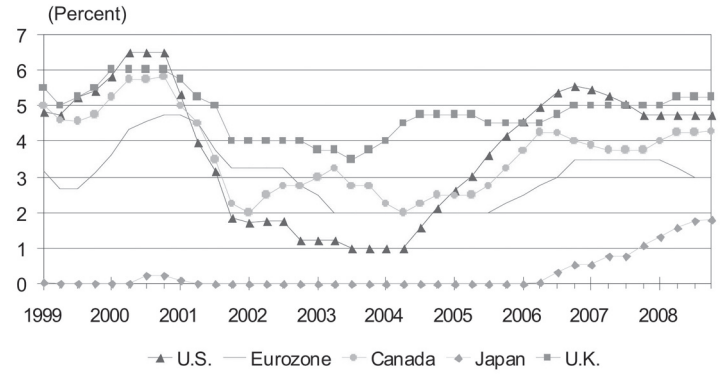
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The "Great Moderation" – G-7 Inflation



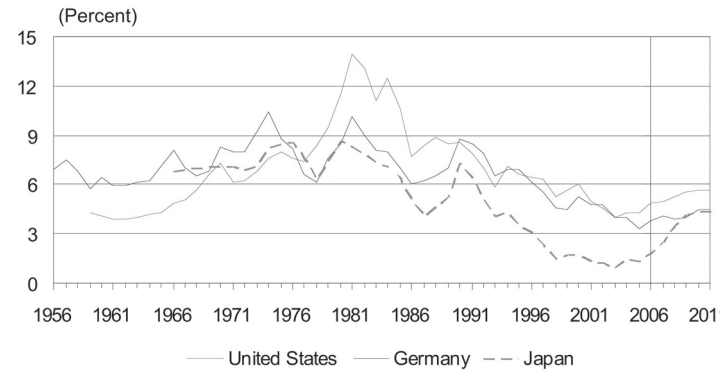
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Most Policy Interest Rates Are Rising



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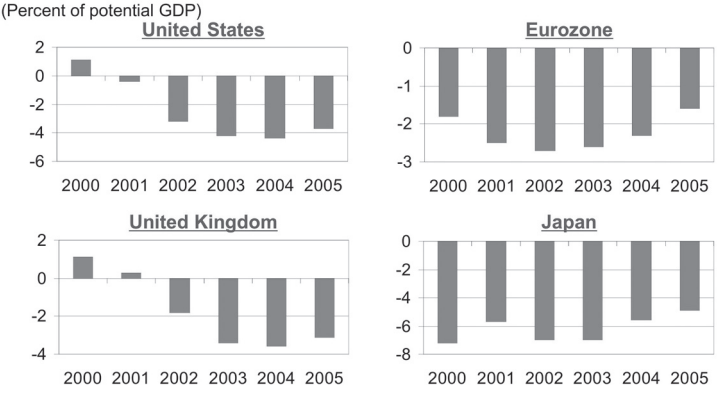
The "Great Moderation" – Long-Term Interest Rates



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Cyclically-Adjusted Government Balances

(Percent of potential GDP)



Source: OECD

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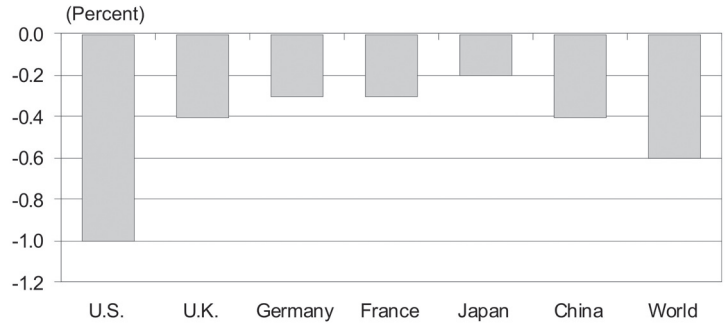
Some Risks Loom Large

- **A global downturn triggered by the U.S.**
- **Higher oil prices**
- **Housing crashes in the U.S., U.K., Australia, Spain, Sweden, France, Ireland, Belgium, and Denmark**
- **A hard landing of the U.S. dollar**
- **"False dawns" in Europe and Japan**
- **Hard landing in China**

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Impact of a 1% Decline in U.S. Growth in 2007

(Based on Global Insight's Global Scenario Model)



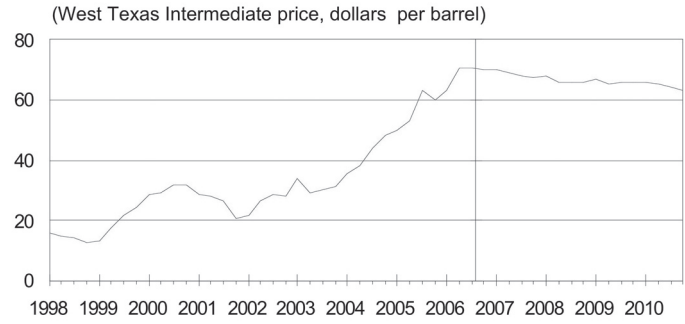
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Oil Prices – Are We Out of the Woods Yet?

- **As growth has slowed and inventories have built up, oil and gasoline prices have started to slide – providing some relief to consumers and businesses**
- **However, demand is still outpacing supply and markets remain very tight**
- **There is still a vulnerability to a geopolitical event and/or a hurricane**
- **The biggest fear is a large supply disruption that could push oil prices above $100**
- **The longer prices stay high, the greater the likelihood of a large adjustment in both supply and demand – which would eventually bring prices back down again**
- **Theories such as "peak oil" have been proved wrong – again and again**

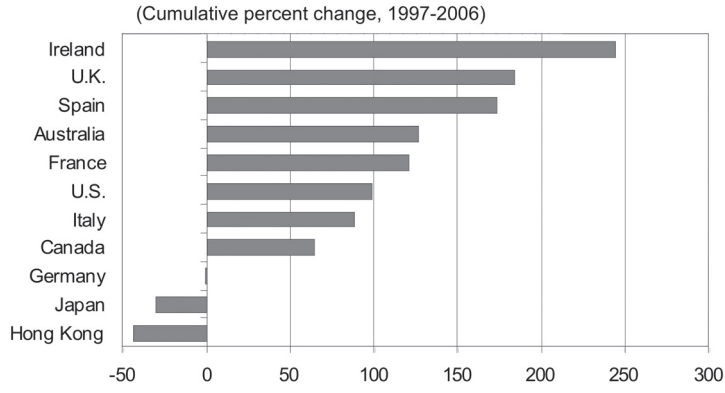
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Crude Oil Prices Will Remain High



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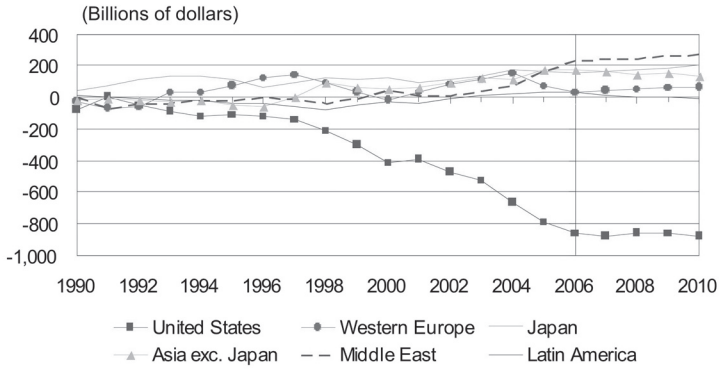
Home Prices Have Soared in Many Countries



Source: *The Economist*, September 9, 2006

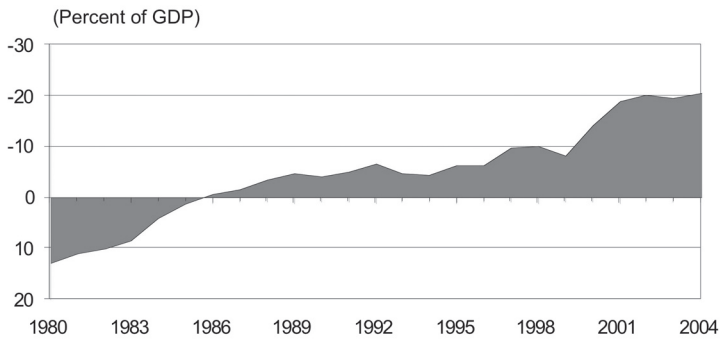
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Current Account Imbalances



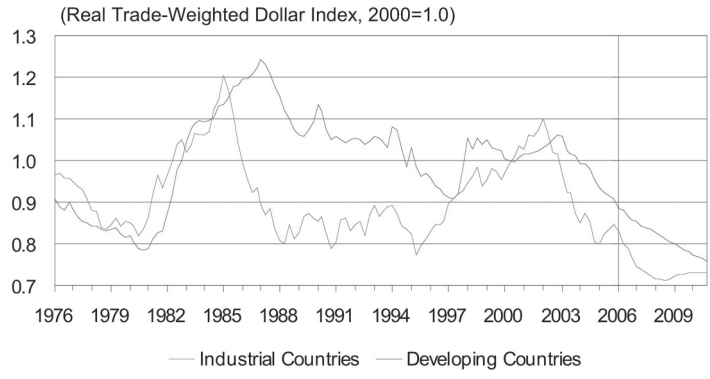
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U.S. Net Foreign Debt – Problem or Not?



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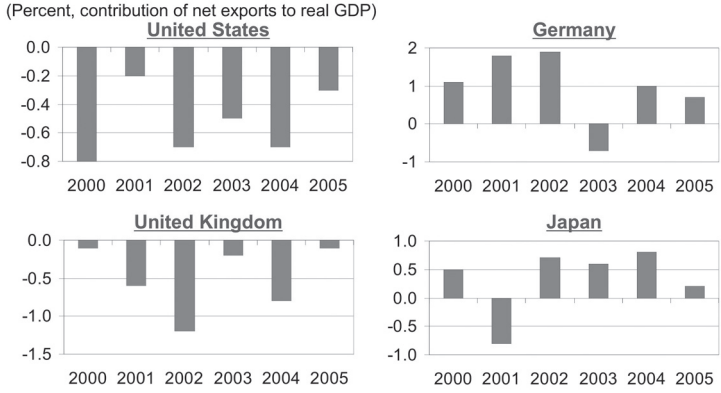
The U.S. Dollar Will Depreciate Further



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Export or Domestic Growth?

(Percent, contribution of net exports to real GDP)



Source: OECD

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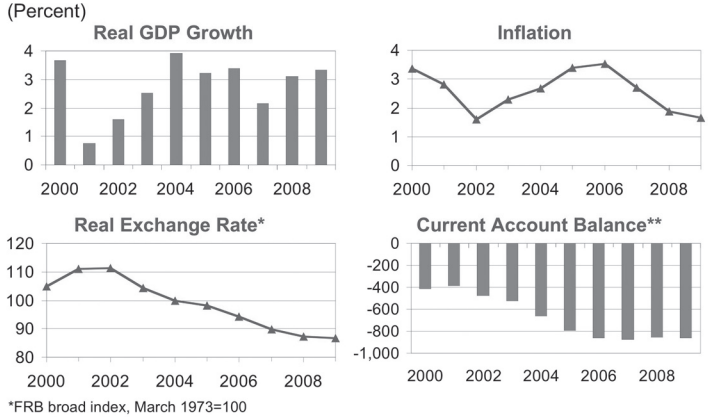
U.S. – Mid-Cycle Correction or Something Worse?

- Growth is slowing towards 2% - A recession is unlikely
- Consumption momentum is weakening, but household balance sheets are strong
- Housing is headed for a bumpy landing
- Core inflation is still edging higher; the Fed may not yet be done raising rates
- U.S. dollar will fall further, boosting exports
- Capital spending will remain strong – the corporate sector is in excellent heath
- But soft landings are rare
- Short-term risks
  - Inflation and interest rates rise more
  - Hard landing for housing
  - Higher oil prices

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United States

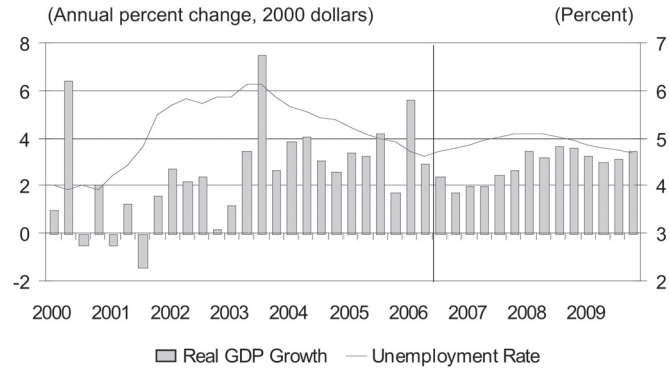
(Percent)



*FRB broad index, March 1973=100
**Billions of U.S. dollars

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U.S. Economic Growth Has Slowed



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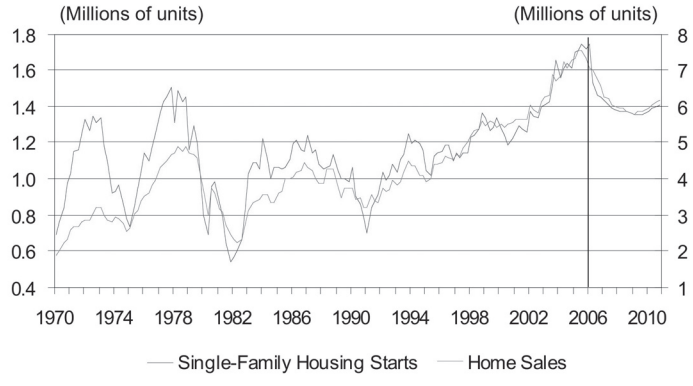
U.S. Metro Areas with 34%+ Housing Overvaluation



34% overvaluation is trigger point for major price correction.

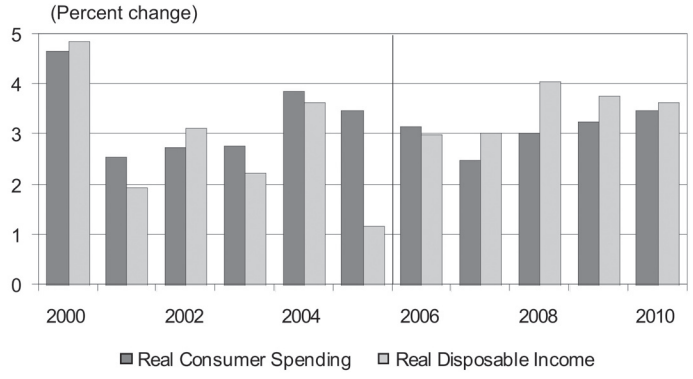
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A Downturn in the U.S. Housing Market



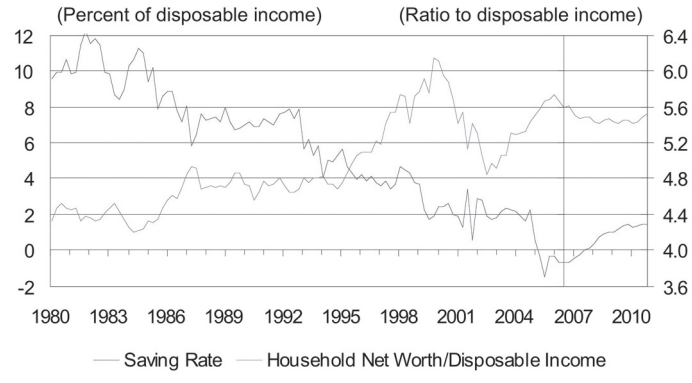
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U.S. Consumer Spending Is Decelerating and Will No Longer Outpace Income Growth



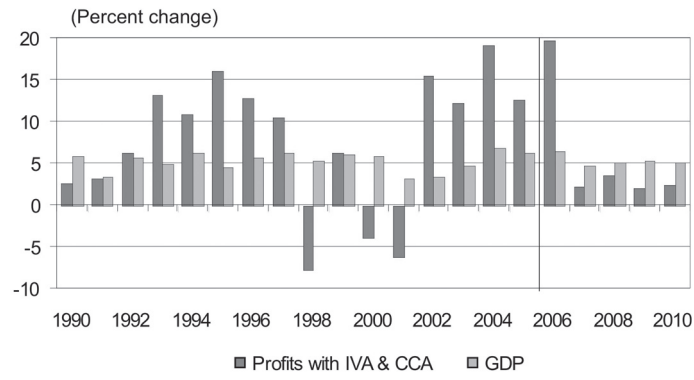
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The U.S. Personal Saving Rate Has Fallen During Periods of Rising Household Net Worth



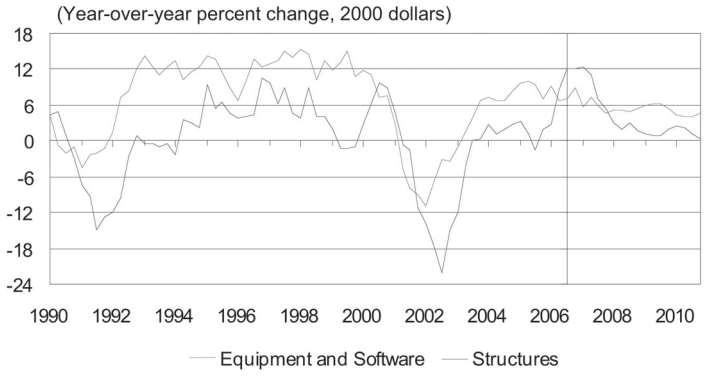
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Expect Smaller Gains in U.S. Corporate Profits



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U.S. Business Fixed Investment Cycles: The Construction Recovery Takes Off



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U.S. Exports and Imports as a Percent of GDP



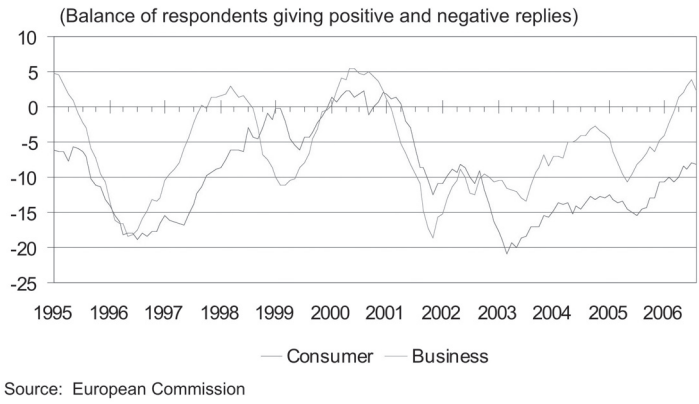
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Eurozone – Can the Rebound Be Sustained?

- Good news: Capital spending and exports have strengthened
- Business confidence remains much stronger than consumer confidence
- Good news: Inflation remains tame and unemployment has fallen
- Key uncertainty: When will consumer spending recover?
- Key uncertainty: How much will growth decelerate this year and next year?
- Long-term structural challenges remain enormous (poor productivity growth, aging populations, high unemployment rates, labor and product market rigidities)
- Short-term headwinds
  - Rising interest rates
  - A stronger euro
  - Tighter fiscal policy
  - Higher oil prices
  - U.S. downturn – will Europe be able to de-couple?

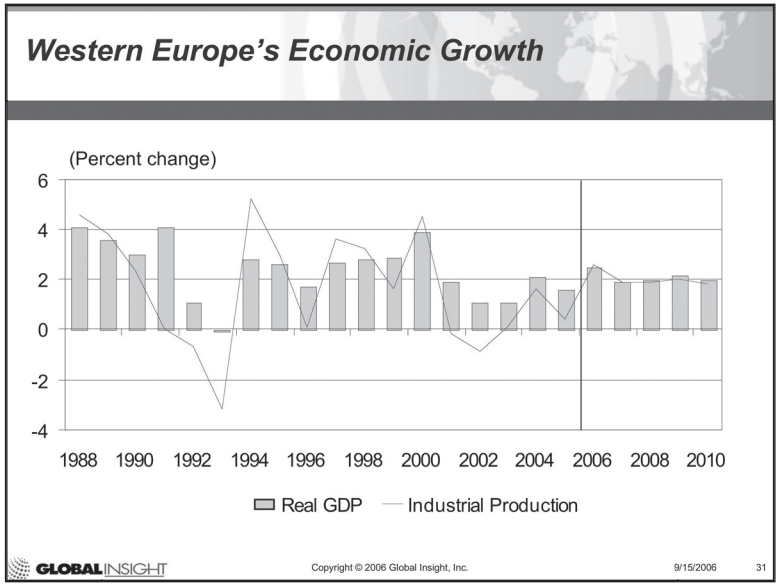
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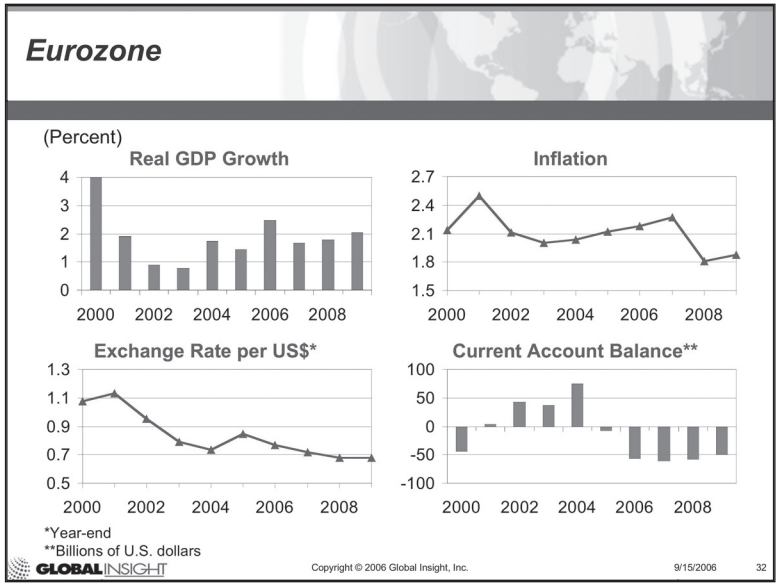
Eurozone Confidence Has Improved



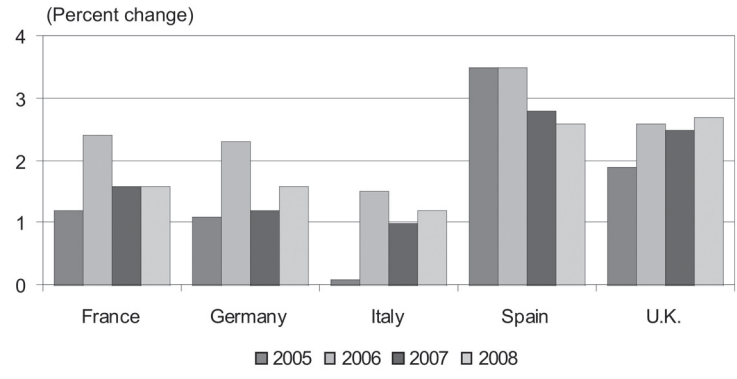
Source: European Commission

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Western Europe's Economic Growth
(Percent change)
6
4
2
0
-2
-4
1988 1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010
Real GDP
Industrial Production
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31

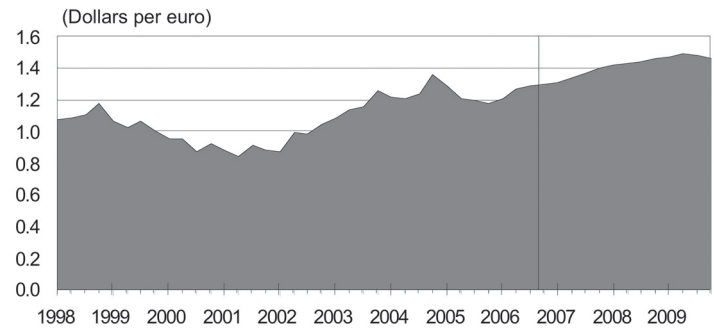

Eurozone
(Percent)
Real GDP Growth
4
3
2
1
0
2000 2002 2004 2006 2008
Inflation
2.7
2.4
2.1
1.8
1.5
2000 2002 2004 2006 2008
Exchange Rate per US$*
1.3
1.1
0.9
0.7
0.5
2000 2002 2004 2006 2008
Current Account Balance**
100
50
0
-50
-100
2000 2002 2004 2006 2008
*Year-end
**Billions of U.S. dollars
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Real GDP Growth Rates Vary Across Europe



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The Euro Will Appreciate Through 2008



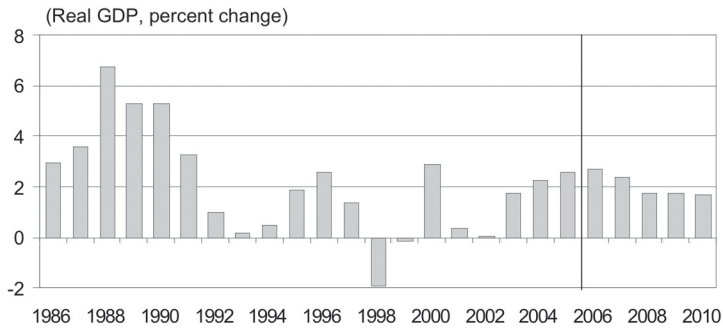
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Japan – Is the "Great Stagnation" Finally Over?

- Corporate and financial restructuring has come a long way – but the adjustment is still incomplete
- A more pro-active monetary policy is bringing an end to the era of deflation
- The growth rebound has been broad-based, but growth is decelerating
- The yen is still weak – especially against the euro
- Short-term challenges
  - A stronger yen
  - Higher interest rates
  - Tighter fiscal policy
  - Higher oil prices
  - U.S./China downturns
- Long-term challenges
  - Rapidly aging population
  - High debt levels
  - Inefficient service sector

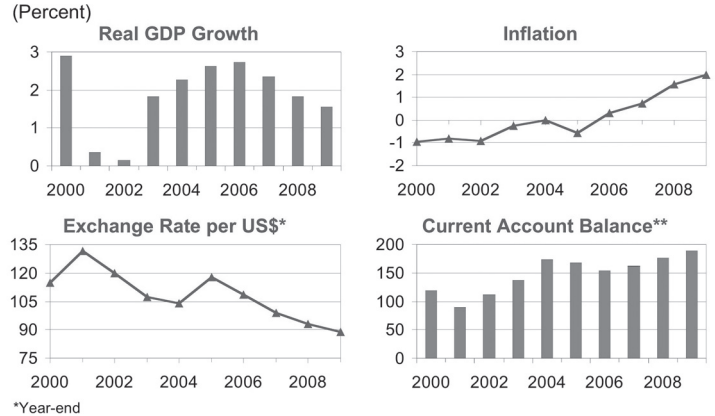
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After the "Great Stagnation," Japan Moves Forward



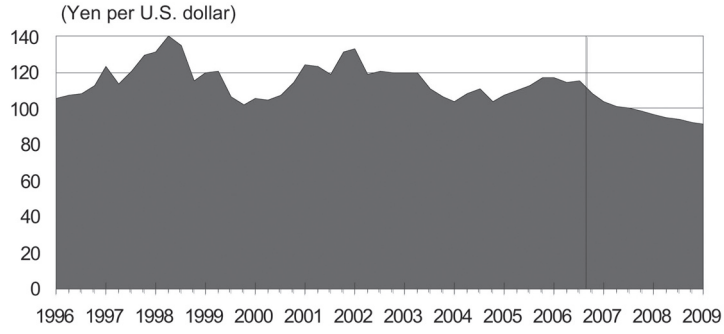
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Japan



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The Dollar Will Depreciate Against the Yen



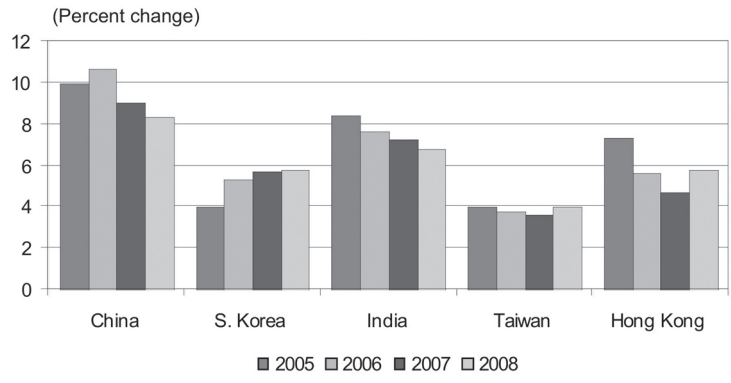
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Asia Is Supporting World Growth

- Asia will remain a powerhouse of global growth
- Momentum is shifting from exports to domestic demand, resulting in more balanced growth
- Central banks are gradually raising interest rates to counter price pressures, fiscal policies will stay conservative
- CPI inflation in Asia (excluding Japan) is in the 3.0-3.5% range but varies widely across countries
- High saving rates mean that these economies will continue to be capital exporters
- Exchange rates across Asia will rise as part of a global trade adjustment
- However, the region remains very vulnerable to hard landings in the U.S. and China

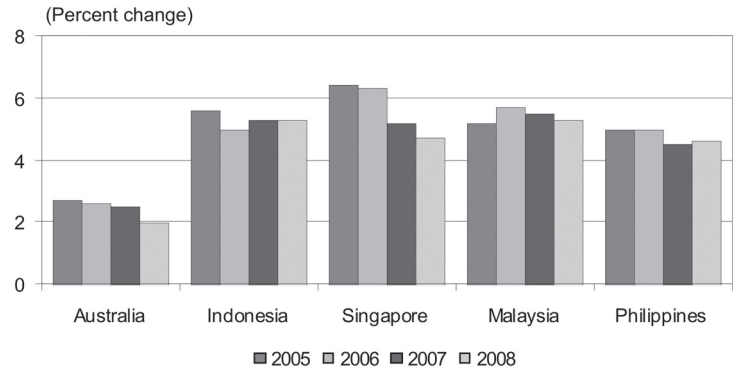
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Real GDP Growth in Asia/Pacific Economies



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Real GDP Growth in Asia/Pacific Economies



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China – Can the Government Engineer a Cooling Down Without Triggering a Recession

- Second quarter growth (11.3%) was the fastest in a decade
- The ratio of fixed investment as a share of GDP has risen from 36.1% in 2002 to 48.6% in 2005
- The trade surplus is ballooning
- Credit growth has been largely out of control
- The government is trying to cool down the economy with modest interest rate hikes and administrative credit controls – so far with little success
- The renminbi will be allowed to appreciate about 3% annually through 2009
- There is a growing risk that China's blunt macro policy instruments will trigger a pronounced downturn
- A China hard landing would hurt most Asian economies , along with commodity exporters such as Australia, South Africa, Brazil and Canada

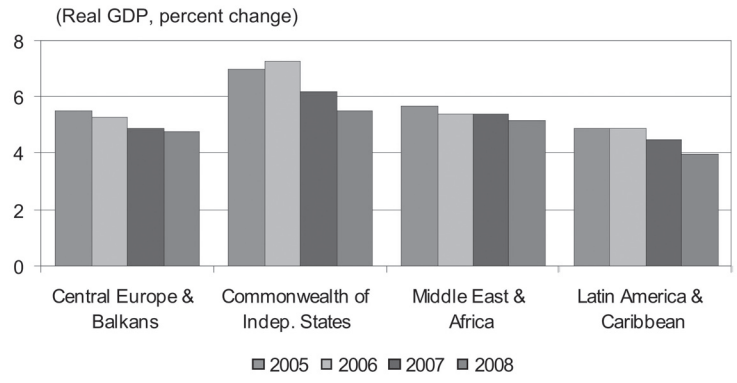
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Other Emerging Markets: A Rising Tide Has Lifted Most Boats…And a Falling Tide…

- **Record-high commodities prices have boosted growth prospects for many regions (especially Latin America, the Middle East, Africa, and CIS)…**
- **…But have also reduced the urgency of reform…**
- **…And encouraged "resource nationalism"**
- **Central Europe is the one region outside of Asia that has benefited from large inflows of capital**
- **By and large, inflationary pressures in emerging markets remain contained**
- **A sharp drop in commodities prices could spell trouble for many economies (e.g., Argentina, Brazil, Venezuela, Nigeria, Iran, etc.)**

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Other Emerging Markets Are Enjoying the Boom



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A Comparison of Key Emerging Markets in 2005

	GDP ($Billions)	Population (Millions)	GDP per Capita ($)	Real GDP Growth, %
China	2,225	1,309	1,700	9.9
India	795	1,097	720	7.8
Brazil	796	184	4,320	2.3
Mexico	769	106	7,230	3.0
Russia	763	143	5,350	6.3
Saudi Arabia	310	24	13,030	6.4
U.S.	12,456	297	41,950	3.2

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Bottom Line

- World economic growth will slow in 2007
- A U.S. (and possibly Chinese) "soft landing" is unlikely to be offset by faster growth in Europe and Japan
- Good news: inflation and interest rates will remain low
- Good news: fiscal and monetary policies are not excessively tight
- The most likely adjustment to global imbalances will continue to be further dollar depreciation
- Risks
  - A disruption of energy supplies and much higher oil prices
  - Higher inflation and interest rates
  - Housing crashes
  - Hard landings in the U.S. and China

Growth will slow, but no recession is likely in 2007

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Appendix B

The following material accompanied Michael L. Mussa's presentation.

Overview

With stronger than expected growth in many countries so far this year, it is now likely that the year-over-year rise in global real GDP will exceed my early April forecast and reach nearly 5 percent (see table 1). As anticipated, stronger growth has brought increased inflationary pressures, and monetary authorities are reacting with tighter policies. In the United States, slowing of growth is already apparent after two years of continuous monetary tightening. For much of the rest of the world, more recent monetary restraint is likely to affect growth primarily in 2007.

The risks of recession in the United States and a substantial slowdown in global growth in 2007 have clearly escalated but are still only moderate. US growth will most likely slow to barely 2 percent next year, after 31/2 percent in 2006. For the world as a whole, the year-over-year growth rate will decline about a percentage point to 4 percent in 2006, partly reflecting significant slowing in some overheating economies, most notably China, as well as in the United States.

Under this scenario, global inflation is not expected to get much worse but is unlikely to recede significantly. Monetary policies in many countries will continue to tighten this year and in early 2007 and will then likely maintain firm stances as growth continues at a more moderate pace with inflation still a worry but not an increasing worry.

There are important risks to this baseline scenario—more so than the risks that have existed for the past three years of exceptionally good global economic performance. World oil prices rose further this summer in the face of some moderate supply problems and considerable concern about political risks, before falling back below $70 per barrel since late August. Excess global production capacity to deal with further supply problems and to allow for rising global demand remains thin. A significant supply disruption resulting from political controversies in the Middle East or a combination of more minor problems around the world would sharply increase world energy prices. On top of the tripling of oil prices that has already occurred since 2002, and with monetary policies now much less accommodative, the negative impact on global growth would likely be substantial. On the other hand, commercial inventories of oil are now above normal, and a relaxation in the tight global supply/demand situation (perhaps due partly to slowing global demand growth) could lead to a sharp fall in world oil prices. This would help alleviate inflationary pressures, reduce the need for monetary tightening, and contribute to stronger global GDP growth. The balance of risks with respect to world oil prices, however, still lies more with concerns about further price increases.

More generally, there is significant uncertainty about the strength of underlying inflationary pressures in the world economy. In the United States, despite some more favorable recent data, measures of core inflation as well as overall inflation have generally headed up in recent months and are at levels above those desired by the Federal Reserve. Other industrial-country central banks (including the European Central Bank, the Bank of England, the Bank of Canada, and the Reserve Bank of Australia) find themselves in a similar situation or worry that they may soon be. The expectation is that modest further monetary tightening will suffice to contain inflationary pressures. But, there is a danger that inflationary pressures are stronger than generally understood and that monetary policies will need to be tightened significantly more than now anticipated. The result would likely be slowing of 2007 GDP growth to a greater extent than now forecast.

Many developing countries face similar concerns about rising inflation and the policy responses thereto. A number of developing-country central banks, including the Reserve Bank of India, have tightened their policies in the face of rising inflation, and the extent of further tightening that may be needed is a significant uncertainty. Although reported inflation in China has remained low, an overheating economy fueled by rapid credit expansion is clearly now a key concern of the government. The nature and effectiveness of the policy reaction to this situation will have important implications for growth next year—which will likely slow significantly from its recent rapid pace.

Large international payments imbalances—specifically, the large current account deficit of the United States and the corresponding surpluses of the rest of the world—provide additional risks for global growth prospects. On the one hand, significant slowing of domestic demand growth in the United States while demand in the rest of the world continues to grow reasonably robustly will contribute to a turnaround from further deterioration to gradual improvement in the US current account. This should lessen the future danger of a "hard landing" for the dollar.

On the other hand, if the US economy slows so much (and US inflationary pressures accordingly abate) that the Federal Reserve responds with a sharp easing of monetary policy, then the dollar would likely come under downward pressure against most other currencies. For Europe and Japan, this would mean that the usual negative effect on exports to the United States from a weakening US economy would be magnified by the effects of currency appreciation—thereby spreading the effects of a US recession to other industrial countries. For China and other countries that tie their exchange rates closely to the US dollar, this exchange rate magnification effect would not immediately operate. Instead, the real effective exchange rates of these countries would likely depreciate as their currencies followed the US dollar down against the currencies of other industrial countries.

But, in the face of weakening employment in the United States and other industrial countries, protectionist rage against the currency policies of a number of developing countries would surely escalate—and not entirely without reason. China, which has overall current account surplus now rising from 7 to 8 or even 9 percent of GDP this year and is rapidly accumulating foreign exchange reserves beyond the scale of any other country, would be the number one target. Although this scenario is not the most likely, the threat that it potentially poses for both global growth and the maintenance of the principles of an open international trading system merits some concern.

The Americas

After rebounding strongly in the first quarter of 2006 to record 5.6 percent annualized real GDP growth, the US economy slowed to just below a 3 percent estimated growth rate in the second quarter. Many considerations suggest that for the next few quarters, the US economy will grow significantly more slowly than the 33/4 percent average annual rate of the past three years. Residential investment is in a slump and clearly has to go down further before it levels off. Consumer spending is no longer being boosted by rapidly rising home values and mortgage refinancing, while high energy prices and increased payments on variable rate mortgages are cutting deeper into disposable income. To restore at least a modestly positive personal saving, consumer spending growth will need to slow below income growth—probably down to only 2 percent per year.

Business investment in equipment, software, and structures will probably continue moderately vigorous growth for a while, spurred by strong profits, high capacity utilization, and rising exports. But this strength will tend to wane as it becomes clear that the slowdown in consumer spending growth is likely to persist for some time. With government purchases likely to show only modest growth, all of this implies that US real domestic demand over the next year or so is likely to rise at only about half of the 4 percent annual rate of the past three years. Real net exports may show modest improvement as import volume growth slows under the impact of weaker domestic demand growth while export volume growth remains strong. (Nominal net exports and the current account balance, however, will continue to deteriorate because of the effect of rising import prices [particularly for energy] and the large existing excess of the value of imports over the value of exports). Such a gain in real net exports will provide a slight boost to US real GDP growth but not enough to raise it much above 2 percent.

This forecast is a percentage point below the Federal Reserve's forecast described by Chairman Ben Bernanke in his July testimony and is also below

the consensus forecast of other economists. I believe, however, that the Fed and most other forecasters are underestimating the power of the forces tending to slow US growth. Moreover, it is clear that if the Federal Reserve really wants to bring inflation down from its recent up-tick, growth of the US economy will need to slow meaningfully below potential for at least a year or so. My forecast envisions such a slowdown and, accordingly, assumes only another 25 basis points of Fed tightening. However, if the US economy grows at 3 percent—in line with its potential—then significantly more Fed tightening will likely be needed. This will mean somewhat stronger growth than my forecast for the next couple of quarters, but then a more substantial slowdown—possibly a recession.

Indeed, even without further significant Fed tightening, the risk of recession in the United States has gone up somewhat relative to the low level that has prevailed for the past three years. The reason for this is simple. When the economy is expected to grow at only about a 2 percent rate, the risk that some unexpected disturbance may tip the economy into recession is obviously greater than when the economy is growing more vigorously at nearly a 4 percent rate. The disturbance could come from a variety of sources: a sharp further rise in energy prices, an upsurge in longer-term interest rates in response to declining foreign capital inflows, a larger than now projected slump in residential investment, a sudden desire of consumers to raise their saving rates, or fall in business confidence that cuts sharply into investment.

The risks of recession, however, should not be exaggerated. Taking account of the postwar business cycle history of the United States (11 expansions lasting an average of about five years and 10 recessions lasting an average of a little less than one year) and the general decline in the volatility of GDP growth over the past 25 years, the normal probability that the US economy will enter recession over the next 12 months (given that it is now in expansion) should be assessed at about 12 to 15 percent. (This is consistent with an expected length of expansions of 61/2 to 8 years.) With a projected slowdown of growth to only about 2 percent and with the recent weak performance of leading indicators for the US economy, the probability of recession over the next year or so now looks to be about double the normal probability—something in the range of 25 to 30 percent.

In Canada, growth picked up to over 3 percent in the first quarter (from four quarters earlier), and both overall and core consumer prices have recently shown signs of acceleration. The Bank of Canada has responded with interest rate tightenings (amounting to 175 basis points from a year ago) and suggested that there may be more to come. The experience of the past four years, with unemployment declining to a multi-decade low as the Canadian economy has grown on average at 23/4 percent per year, suggests that the potential

growth rate is probably no more that 21/2 percent. With the spillover effects from weaker growth south of the border, I expect that Canadian monetary policy will deliver a growth rate in line with potential in 2007 after somewhat exceeding this rate in 2006.

In Mexico, the economy rebounded in the first quarter to record a 5.5 percent gain over the same quarter in 2005. Reflecting slower growth in the United States and some adverse economic effects from the political turmoil surrounding Mexico's close presidential election, growth in the Mexican economy will likely slow during the remainder of this year and continue at a more sluggish pace in 2007. Nevertheless, on a year-over-year basis my growth forecast for 2006 is boosted by half a percentage point to 4 percent. For next year, I expect that growth will continue at barely above 3 percent.

In Argentina, growth has remained very robust supported by strong domestic demand growth. The trade balance, however, has deteriorated only modestly, thanks to the maintenance of a substantially undervalued exchange rate and strong demand for Argentine commodity exports. Although partially suppressed by price controls and government jawboning, inflation is running at about 12 percent—triple and quadruple the rates in Brazil and Mexico, respectively. Growth is now expected to reach at least 7 percent this year and slow to about 5 percent next year. Eventually the inconsistencies in Argentine economic policies will need to be unwound, probably in a messy fashion; but that time still looks a couple of years away.

In Brazil, output growth has accelerated after a sharp (but brief) slowdown during 2005—with good outcomes in both the fourth quarter of last year and the first quarter of this year. Economic activity, however, slowed significantly in the second quarter, making it unlikely that year-over-year growth for 2006 will reach the government's forecast of 4 percent. With support from easier monetary policy (justified by low and falling inflation), real GDP growth should rise to close to 4 percent in 2007, despite some negative effects from slower growth in the rest of the world. Moreover, Brazil's central bank still appears to have room to ease further, without inducing inflation risks, and the exchange rate of the real could fall back somewhat after the strong appreciation since 2003.

For the other (economically significant) countries in Latin America, real growth this year generally appears quite solid (and in line with forecast), running between about 3 percent for the more slowly growing counties like Bolivia and Ecuador and 51/2 to 6 percent for the stronger performers like Chile, the Dominican Republic, and Peru. On the back of very strong oil prices, the Venezuelan economy continues to grow particularly strongly.

In 2007 growth for these countries, on average, is likely to be somewhat lower than this year—reflecting slower global growth, less favorable global

financial conditions, and natural slowdowns in some countries enjoying recoveries from earlier difficulties. Specifically for Chile, a modest slowing from 51/2 to 5 percent growth will reflect some further normalization of domestic interest rates by the central bank, as well as somewhat less buoyancy in key export markets. For Colombia, the upsurge in consumer spending that boosted growth early this year will probably wane somewhat as time passes, implying a slight slowdown from nearly 5 percent growth in 2006 to 41/4 percent growth for 2007. For Peru, uncertainties about the policies of the new Garcia administration and waning of special factors (including the surge in gold exports) that aided growth this year suggest that growth will slow from nearly 6 percent to about 5 percent. For Venezuela, the special benefits from the rebound from the steep recession of 2002/2003 should be exhausted this year, and growth next year will slow to a still vigorous 5 percent rate.

For Latin America as a whole, all of this suggests that growth this year should come in at about 41/2 percent, about 1/4 percent above the early April forecast. For 2007, a slowdown to a little below 4 percent growth is expected.

Asia

Although they aggregate to 37 percent of world GDP (on the basis of the World Economic Outlook's purchasing power parity (PPP)–based exchange rates), the economies of Asia in recent years have accounted for well over half of world GDP growth. This pattern continues in 2006 and will almost surely be true thereafter.

In Japan, after a decade when real GDP growth averaged barely 1 percent per year, for the past three years it has averaged 21/4 percent. With strong performance at the end of last year, which moderated somewhat in the first quarter, Japan now looks set to achieve nearly 3 percent growth for 2006. While low by the standards of pre-1990 Japan, this growth rate likely exceeds the potential (or no more than 2 percent real growth) for a country with a declining labor force and population and an industrial technology that has already caught up with, and in some cases surpassed, the best elsewhere in the world.

With an end to the deflation of recent years, the Bank of Japan terminated its policy of quantitative easing this spring and moved to a modestly positive (25 basis points) policy interest rate in July. Acceleration of inflation to undesirable levels does not appear to be an imminent threat. Nevertheless, the Bank of Japan is likely to proceed gradually to increase its policy interest rate to about 1 percent over the next 9 to 12 months. This by itself should not much impede growth of the Japanese economy. However, weakening of

growth in Japan's key export markets and the normal tendency toward slowing in an economy nearing potential suggest that Japanese growth for 2007 will slip back to about 21/4 percent.

Among industrial countries, Australia (along with the United Kingdom) has led the current global recovery. As the Australian economy felt little effect from the global slowdown of 2001 and benefited significantly from the subsequent global commodity boom, Australian monetary policy needed to tighten already in 2003 to avoid overheating. Subsequently as growth slowed somewhat (including in the housing sector), monetary policy was eased back modestly. Most recently, as economic growth and inflation have picked up somewhat, the Reserve Bank has responded by increasing its policy interest rate to 5.75 percent—the highest among industrial countries (aside from New Zealand and tiny Iceland).

Over the past four years, average annual real GDP growth in Australia of 3.3 percent has been associated with a decline in the unemployment rate from 6.4 to 5.1 percent—the lowest in decades. This suggests both that the potential growth rate of the Australian economy is a little less than 3 percent and that the current level of GDP may well be above potential. Hence, if the Reserve Bank is to achieve its target of keeping inflation between 2 and 3 percent, it will need to tighten monetary policy sufficiently to slow the growth rate of the Australian economy meaningfully below 3 percent for at least a few quarters. I believe that this will happen before much longer. Accordingly, while the forecast for GDP growth this year remains at slightly over 3 percent, the forecast to 2007 envisions growth slowing below 3 percent.

Contrary to my April forecast of some slowing of growth in China this year, the results so far show an acceleration, with real GDP growth of 11.3 percent estimated for the second quarter versus the same quarter a year ago. Even with the government's efforts to slow the economy in the second half, it is now likely that growth this year will top last year's 10.2 percent rise (compared with my early April forecast of 9 percent growth for China this year). Growth is being driven by a further surge in fixed investment, taking its share of GDP up to an incredible 45 percent of GDP. Rapid increases in bank credit (which has already almost reached the central government's target for the entire year) have fueled this investment surge.

Strong gains in exports, significantly in excess of import growth, have also contributed to the expansion. The trade surplus so far this year is running well ahead of last year's pace, indicating that the annual outcomes for both the trade and current account surpluses will be about 2 percent of GDP larger than in 2005. This means a rise in the current account surplus to about 9 percent of GDP for 2006. Meanwhile, under China's policy of allowing only very gradual

appreciation of the yuan against the US dollar, foreign exchange reserves continue to pile up at a prodigious rate, exceeding $940 billion by end June—the largest in the world. By year-end, reserves will surely surpass $1 trillion.

Not only does China's exchange rate policy contribute to a rising trade balance by keeping the relative price of Chinese exports artificially low but also its financial consequences are driving monetary expansion, and the combined effect is to distort significantly the pattern of Chinese economic development. Specifically, the People's Bank of China (the Chinese central bank) finds it difficult to sterilize all of the monetary effect of the massive increases in its foreign exchange reserves, thereby contributing to rapid money and credit growth. This, in turn, fuels massive investment spending (as firms rather than consumers are the main recipients of bank credit). Meanwhile the hyper-competitive exchange rate distorts the pattern of investment toward export-oriented industries and related infrastructure.

These developments are the direct opposite of the stated goals of the Chinese authorities, which are to shift growth in favor of consumption and to shift investment toward consumption-related industries and toward the development of the interior of the country. Policy actions by the central government, however, have been inadequate to move outcomes in the desired directions. The increase in the central bank's interest rate this spring is far too small to deter rapid credit growth. Government efforts to redirect investment in line with its priorities run up against the powerful incentives to go the other way that are implicit in an undervalued exchange rate.

As in past episodes of overheating, application of direct controls on bank lending and "moral suasion" by the government will probably rein in and redirect credit growth—although in an inefficient manner. For the near term, this will curb the investment surge and contribute to a slowing of Chinese real GDP growth in the second half of 2006 and next year, leading to a forecast of 83/4 percent real GDP growth year-over-year for 2007. Such a growth slowdown, however, will not address the fundamental imbalances in the Chinese economy that continued to be fostered by a substantially undervalued currency.

In India, growth has also been somewhat stronger than forecast so far this year, and the forecast needs to be revised up from 7 percent real GDP growth to 73/4 percent. In contrast with China, consumption spending (along with investment) has been a key driver of the Indian economy. Also, India's trade balance has deteriorated further under the impact of rising energy import costs and will likely reach 8 percent of GDP this year. Thanks to service earnings and income transfers, the current account deficit is substantially smaller than the trade deficit, but it is likely to rise to 3 percent of GDP this year. Worries about the deteriorating trade and current account balances have put modest downward pressure on the rupee.

Meanwhile, consumer price inflation has picked up somewhat, partly reflecting increased pass-through of rises in world energy prices to domestic prices. The Reserve Bank of India has responded to these developments with modest monetary tightening and has suggested that there may be more to come. The central government's fiscal balance has deteriorated modestly (as a share of GDP) but will be under greater pressure if domestic interest rates continue to rise. With monetary policy tightening and fiscal policy broadly neutral, with the external environment turning moderately negative, and with the erosion of some of the special factors that have recently boosted Indian economic growth, it is reasonable to expect that growth for 2007 will come in somewhat below 2006, say about 7 percent.

In the rest of emerging Asia, growth this year now appears likely to slightly exceed 5 percent, versus an early April forecast of 41/2 percent. While the factors are somewhat mixed across different economies, the basic story is that both domestic demand growth and export growth have been modestly stronger than earlier expected.

Meanwhile, inflation has picked up in some of these countries, and central banks have responded with monetary tightening. Together with a likely fall off of export growth to the United States and other countries (probably including China), this suggests that growth prospects for 2007 are modestly weaker than for this year—down to 41/2 percent real GDP growth projected for 2007.

Europe

For Western Europe, the early April forecast of 2 percent growth for 2006 now appears to be about 1/2 percent too low. In line with this modest aggregate adjustment, the adjustments to the forecasts for individual countries are all also generally positive and modest.

For the euro area, with good results now in for the second quarter, the growth forecast for 2006 is upgraded by 1/2 percent. Germany appears to be coming in 1/2 percent stronger than earlier forecast, with growth now projected to be 21/4 percent. Both France and Italy also look a little stronger than expected, with growth rates now projected to be 21/4 and 11/2 percent, respectively. Spain is likely to reach the 31/2 percent growth forecast in April. Most of the smaller euro area countries are doing a little better than earlier expected.

With growth improving to about 21/4 percent from last year's 11/2 percent result, and with inflation rising above the desired ceiling of 2 percent and money growth still exceeding target, the European Central Bank (ECB) has

continued to tighten monetary policy, raising its key policy interest rate by 100 basis points to 3 percent since last November. Unlike the Federal Reserve two years ago, the ECB has not suggested a schedule for future policy tightening. In view of the growth and inflation data, however, it seems clear that further tightening is on the way, with the policy interest rate likely to be raised one or two more times this year. Assuming that growth does not slow below about 11/2 percent, the policy rate will probably reach 4 percent early next year. If (headline) inflation falls back to 2 percent (because energy prices stop rising), this would imply that in real terms the policy interest rate is 2 percent—not exceptionally easy but not particularly tight. It remains to be seen how much more the ECB will feel it has to do to keep inflation adequately contained.

The fact that the unemployment rate in the euro area and the unemployment rates in most of its member countries have declined over the past three years, while growth has averaged less than 11/2 percent per year, suggests that potential output growth in the euro area is below 2 percent, perhaps even below 11/2 percent. With the unemployment rate now down almost to the low reached at the end of the last expansion (when inflation was headed up), the ECB is more likely to be reassured rather than worried if growth next year falls off somewhat from this year's pace. Indeed, the mandate of the ECB to focus primarily on inflation (rather than growth) and the record of the past six years of inflation running slightly but consistently above its desired ceiling are likely to make the ECB more cautious than the Federal Reserve about the risks of ending monetary tightening too soon.

With this in mind, it seems prudent to forecast that euro area growth next year will fall below 2 percent. In addition to ECB tightening, this slowdown will likely reflect weaker export growth, perhaps partly induced by some further appreciation of the euro against the dollar.

In the United Kingdom, growth now looks likely to come in about 1/4 percent stronger than the early April forecast of 21/4 percent. Inflation pressures also appear to have picked up somewhat. Thus financial markets should not have been so surprised when the Bank of England's Monetary Policy Committee decided to boost the repo rate by 25 basis points at its August meeting. The subsequently released inflation report indicates that the possibility of inflation running above target is likely to remain a key concern, but it is not clear whether further tightening will be needed to contain this risk.

Significant slowing of the US economy and some slowing of the euro area economy next year will be negative factors for UK export growth. This could be offset by sharp depreciation of sterling against the euro—which would make sense in light of Britain's rising current account deficit and the possibility that future interest rate increases in the euro area will significantly exceed those

of the Bank of England. A sharp decline in sterling, however, would add to inflationary pressures and likely provoke some interest rate response for the Bank of England.

Thus, all things considered, it is reasonable to forecast that there will be at least a modest slowing of real GDP growth in the United Kingdom next year. My assessment that the potential growth rate of the UK economy is about 21/4 percent suggests this rate as the baseline forecast.

The smaller Western European economies outside of the euro area (leaving tiny Iceland aside) are generally doing quite well and now seem likely to enjoy, in 2006, the strongest growth they have seen in a number of years. Sweden appears headed for nearly 4 percent growth. Switzerland's growth may reach almost 3 percent, and Denmark's economy should expand by at least 21/2 percent.

For all of these countries, it is likely that growth will be somewhat slower next year. This partly reflects normal slowing after unusually strong growth (by the recent standards of these countries). It also reflects the likely negative impact of slower growth in key partner countries in Europe and North America. And it reflects the policy tightening that has recently started in response to some rising concerns about inflation.

Central and Eastern Europe and the Former Soviet Union

Among the countries of Central and Eastern Europe and the former Soviet Union, the Russian economy is performing as expected in early April, and growth of 61/2 percent is still projected for this year. Most of the rest of the former Soviet Union is also performing about as expected in early April, with the energy-rich countries (Kazakhstan and especially Azerbaijan) growing strongly, and the Baltic countries (Estonia, Latvia, and Lithuania) continuing to do very well, while Ukraine suffers relative stagnation in the face of continued domestic political turmoil. Overall, the economies of the former Soviet Union will probably grow about 7 percent this year and slightly less rapidly in 2007.

In contrast, the Turkish economy has suffered from financial market nervousness about the large current account deficit and the now apparent overvaluation of the Turkish lira. A sharp monetary tightening (amounting to 400 basis points) by the Turkish central bank has been the necessary and appropriate response to stabilize the situation and has restored credibility to the inflation target. But the consequence is that growth is likely to be cut from 71/2 percent in 2005 to about 41/2 percent this year. At

present there is little reason to expect a re-acceleration in 2007 as monetary policy is likely to need to retain a relatively firm stance to offset inflationary pressures that would otherwise emerge from a weakening lira in the face of a still large current account deficit.

In the economies of Central Europe, growth this year appears modestly stronger than was expected in early April, with the Czech Republic now expected to achieve 6 percent real growth while Poland's economy expands by nearly 5 percent and Hungary dodges the bullet for another year and grows by just over 4 percent. Trouble is brewing, however, especially in Hungary with its large budget and current account deficits. More generally, somewhat slower growth in Western Europe in 2007 is likely to spill over to affect growth to the east.

Middle East and Africa

Growth in both of these regions continues to benefit from very strong global commodity prices, including oil. The oil-exporting countries (Saudi Arabia, Kuwait, the smaller Gulf states, Algeria, Angola, and Nigeria) all continue to grow strongly, notwithstanding occasional supply disruptions in Nigeria; and real GDP growth rates in the range of 5 to 6 percent appear likely to continue at least through 2007. The Iranian economy is also expanding reasonably rapidly, aided by high oil export revenues; but growth prospects are somewhat clouded by the possibility of wider economic sanctions that might be imposed in response to Iran's continued nuclear development program.

The non-oil-exporting economies in these regions (most notably Egypt and South Africa) are also growing strongly this year and may reasonably be expected to continue with similar performance in 2007. In Africa, the strong economic performance of the past few years (and prospects for the future) has been significantly aided by the relative absence of armed conflicts, despite continuing difficulties in Somalia, Sudan, the Congo, and Cote d'Ivoire, and the mess in Zimbabwe. In the Middle East, the economy of Lebanon was clearly devastated by the August war, and growth this year in the significant-sized Israeli economy also felt a sharp but brief setback. In Iraq, escalating sectarian violence is undoubtedly an important impediment to more rapid economic recovery, although there are some indications that economic activity is rising in more peaceful regions of the country.

On balance, if growth in the rest of the world economy is slowing by about one percentage point between 2006 and 2007, it is reasonable to

expect that this slowdown will be reflected in somewhat less buoyant global commodity markets and more generally in a modest negative spillover to growth in Middle East and Africa.

Table 1 Real GDP growth rate projections (percent change, year over year)

Country/region	2005	2006	2007
Industrial countries	2¾	3	2
United States	3¼	3½	2¼
Canada	3	3	2½
Japan	2½	3	2¼
Western Europe	1¾	2½	2
United Kingdom	2	2½	2¼
Other West Europe	2¼	3¼	2½
Euro area	1½	2¼	1¾
Germany	1	2¼	1½
France	1¼	2 ¼	1¾
Italy	0	1 ½	2¾
Other euro area	2¾	3¼	2½
Developing countries	7	7	6
Asia	8½	8½	7
China	10¼	10¼	8¾
India	8½	7¾	7
Other Asia	4¾	5½	4½
Latin America	4¼	4½	3¾
Argentina	9¼	7½	4½
Brazil	2¼	3¾	3¾
Mexico	3	4	3¼
Other Latin America	7	5	4
Central and Eastern Europe	5	4½	4
Commonwealth of Independent States	7	7	6½
Russia	6½	6½	6
Middle East	6	5½	5
Africa	5¼	5½	4½
World	4¾	5	4

Table 2 Indications of Diminishing Slack

Country or Region	Average Annual Real GDP Growth, Mid 03 to Mid 06	Average Annual Domestic Demand Growth Mid 03 to Mid 06	Unempl. Rate at Mid 03	Unempl. Rate, latest; Change from Mid 03	CPI Inflation, last 12 months; Change from year ago	Core CPI Inflation, last 12 months; Change from year ago
United States	3.7	3.9	6.1	4.7 -1.4	4.1 +0.9	2.7 +0.7
Euro Area	2.1	1.9	8.7	7.8 -0.9	2.5 +0.3	1.4 +0.1
United Kingdom	2.7	3.0	5.0	5.5 +0.5	2.4 +0.1	0.9 -0.7
Canada	3.1	4.6	7.8	6.4 -1.4	2.5 +0.8	2.0 +0.3
Australia	3.1	4.2	6.1	4.9 -1.2	4.0 +1.5	
Japan	2.7	2.1	5.2	4.1 -1.1	1.0 +1.5	0.2 +0.6

Appendix C

The following material accompanied J.D. Foster's presentation.

Macroeconomic Implications for Department of Defense Budget

Department of Defense Economics Conference

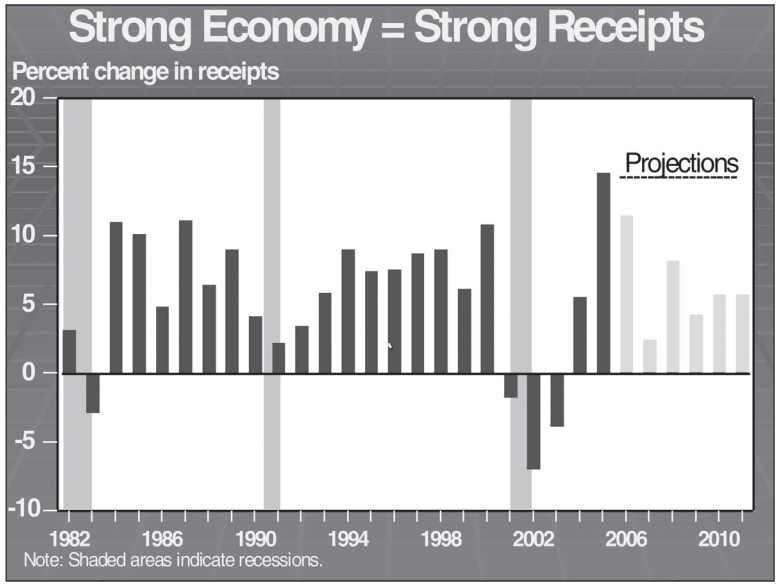
Institute for Defense Analysis

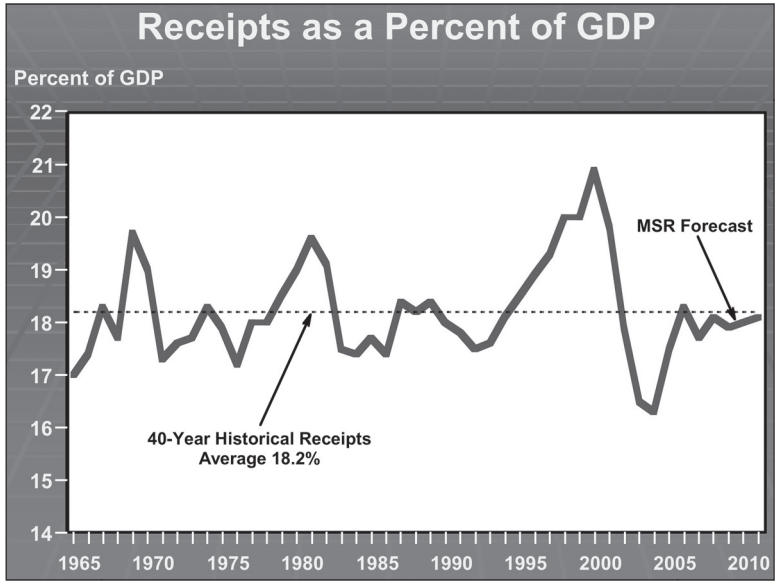
J.D. Foster
Associate Director for Economic Policy
Office of Management and Budget

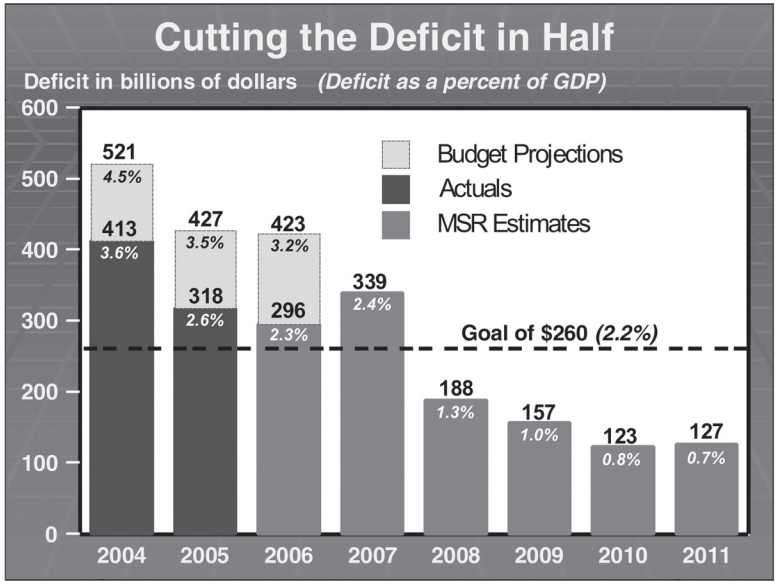
September, 2006

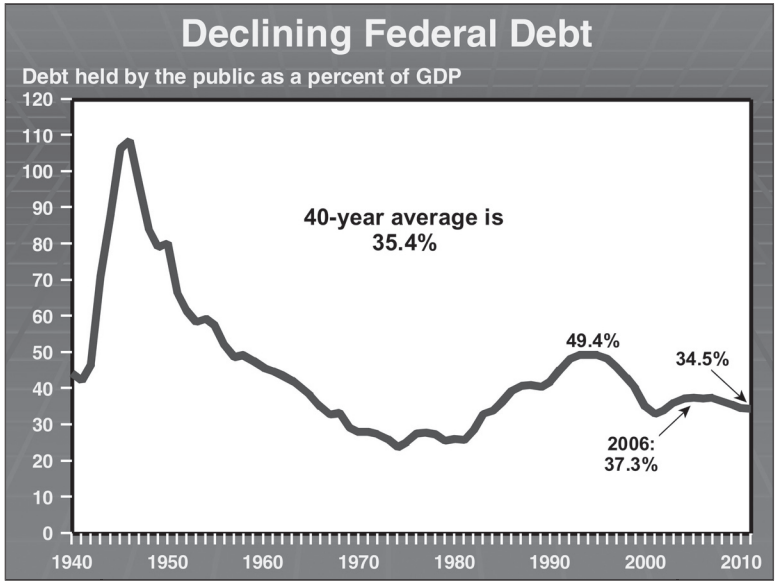
Start with the Macroeconomy

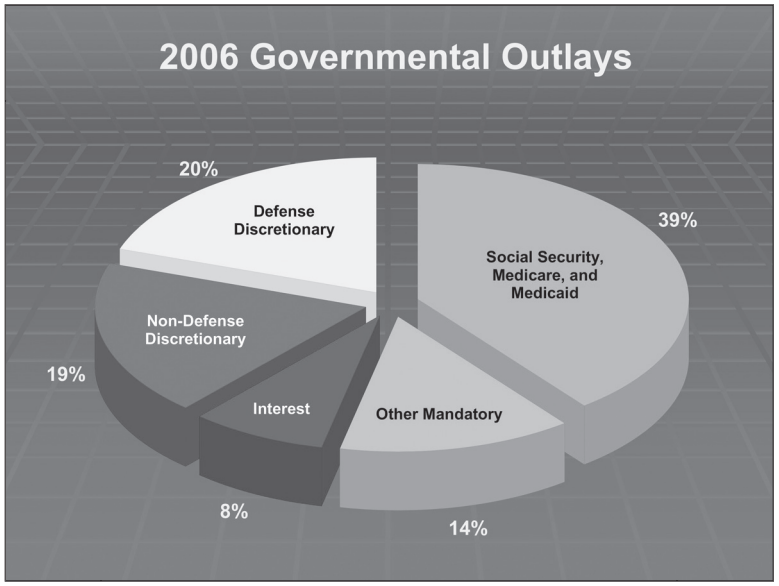
- Real Economy Grew Almost 4.2 Percent (annualized) in First Half of 2006
- Economy is Slowing
- Fundamentals Remain Strong
- Which Means Headwinds Can and Will Likely Be Overcome

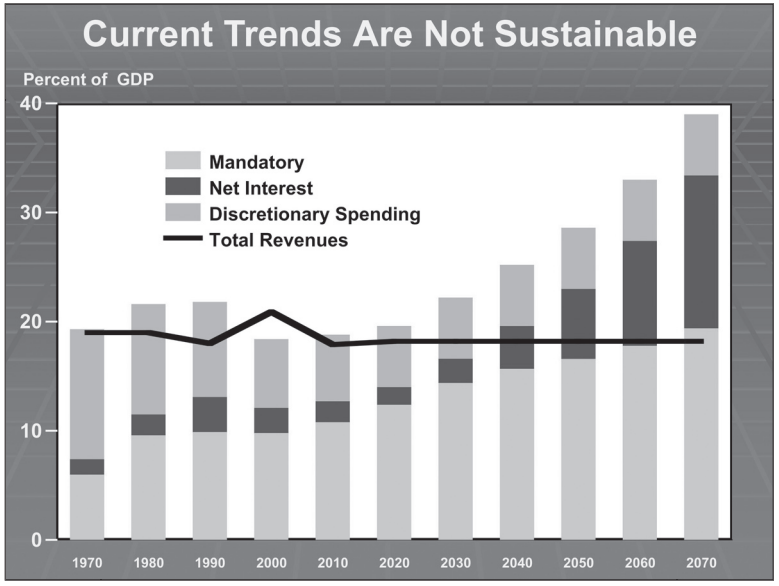

Strong Economy = Strong Receipts
Percent change in receipts
20
15
10
5
0
-5
-10
Projections
1982
1986
1990
1994
1998
2002
2006
2010
Note: Shaded areas indicate recessions.

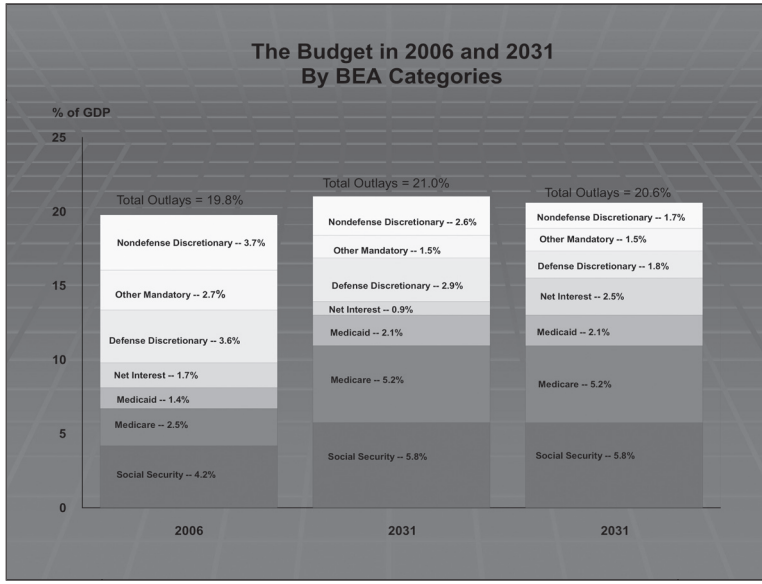

Receipts as a Percent of GDP
Percent of GDP
22
21
20
19
18
17
16
15
14
MSR Forecast
40-Year Historical Receipts
Average 18.2%
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010


Cutting the Deficit in Half
Deficit in billions of dollars (Deficit as a percent of GDP)
600
500
400
300
200
100
0
521
4.5%
413
3.6%
427
3.5%
318
2.6%
423
3.2%
296
2.3%
339
2.4%
188
1.3%
157
1.0%
123
0.8%
127
0.7%
Budget Projections
Actuals
MSR Estimates
Goal of $260 (2.2%)
2004
2005
2006
2007
2008
2009
2010
2011


Declining Federal Debt
Debt held by the public as a percent of GDP
120
110
100
90
80
70
60
50
40
30
20
10
0
40-year average is
35.4%
49.4%
34.5%
2006:
37.3%
1940
1950
1960
1970
1980
1990
2000
2010

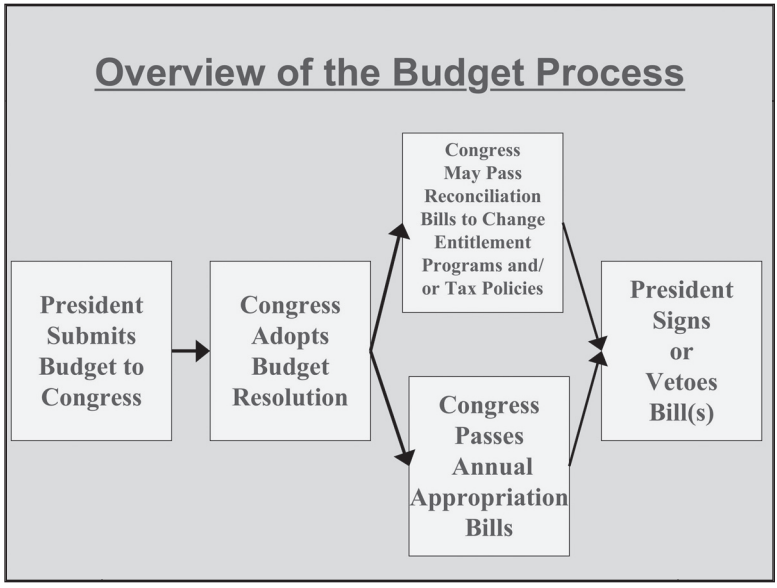

2006 Governmental Outlays
20%
Defense Discretionary
39%
Social Security, Medicare, and Medicaid
Non-Defense Discretionary
19%
Interest
Other Mandatory
8%
14%

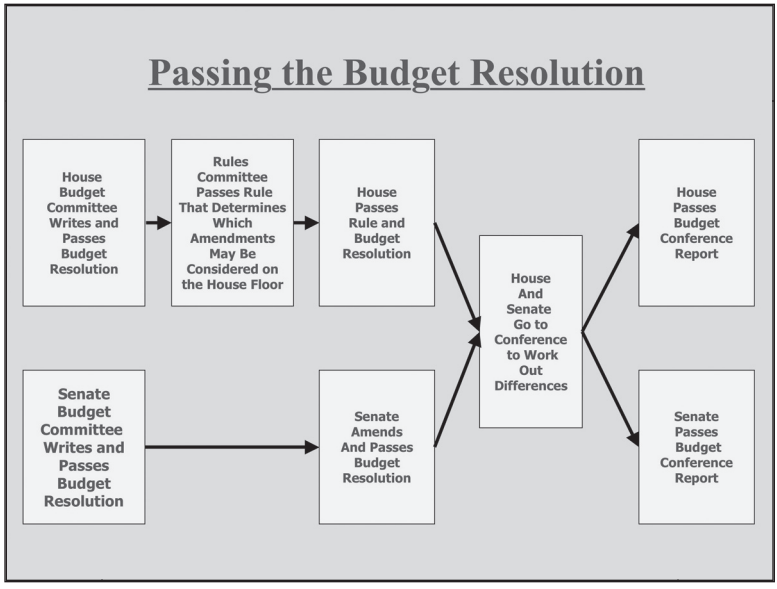

Current Trends Are Not Sustainable
Percent of GDP
40
30
20
10
0
Mandatory
Net Interest
Discretionary Spending
Total Revenues
1970
1980
1990
2000
2010
2020
2030
2040
2050
2060
2070

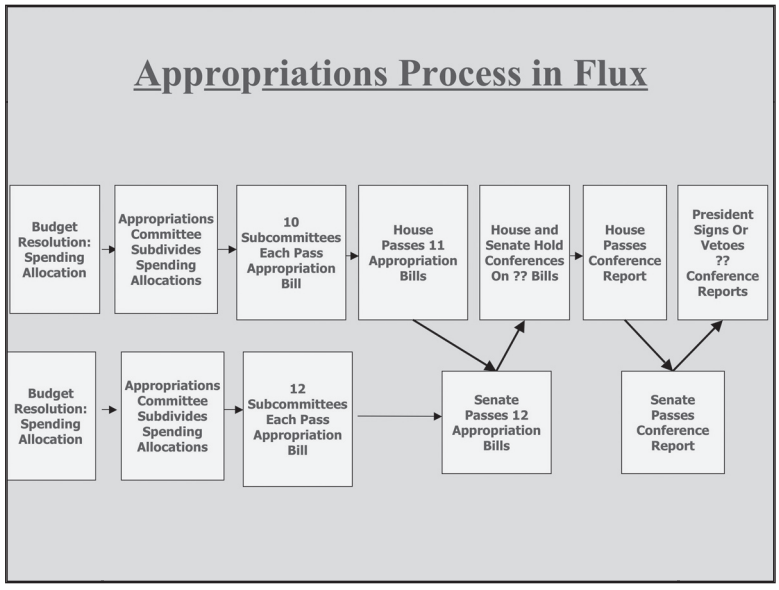

The Budget in 2006 and 2031
By BEA Categories
% of GDP
25
20
15
10
5
0
Total Outlays = 19.8%
Nondefense Discretionary -- 3.7%
Other Mandatory -- 2.7%
Defense Discretionary -- 3.6%
Net Interest -- 1.7%
Medicaid -- 1.4%
Medicare -- 2.5%
Social Security -- 4.2%
2006
Total Outlays = 21.0%
Nondefense Discretionary -- 2.6%
Other Mandatory -- 1.5%
Defense Discretionary -- 2.9%
Net Interest -- 0.9%
Medicaid -- 2.1%
Medicare -- 5.2%
Social Security -- 5.8%
2031
Total Outlays = 20.6%
Nondefense Discretionary -- 1.7%
Other Mandatory -- 1.5%
Defense Discretionary -- 1.8%
Net Interest -- 2.5%
Medicaid -- 2.1%
Medicare -- 5.2%
Social Security -- 5.8%
2031

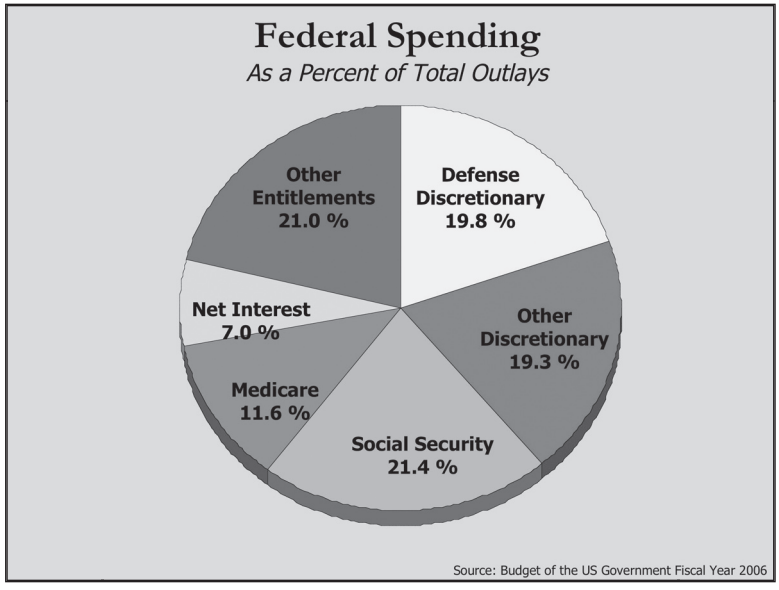
Appendix D

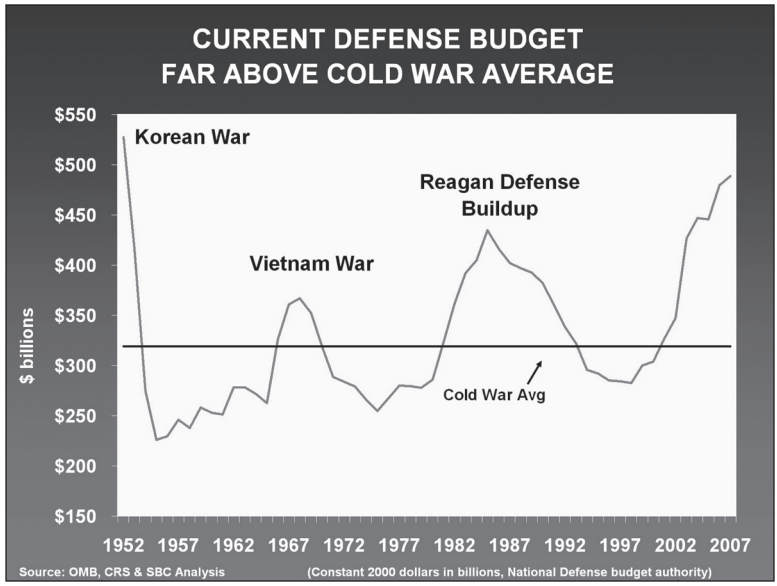
The following material accompanied Michael S. Lofgren's presentation.






Appropriations Process in Flux
Budget Resolution: Spending Allocation
Appropriations Committee Subdivides Spending Allocations
10 Subcommittees Each Pass Appropriation Bill
House Passes 11 Appropriation Bills
House and Senate Hold Conferences On ?? Bills
House Passes Conference Report
President Signs Or Vetoes ?? Conference Reports
Budget Resolution: Spending Allocation
Appropriations Committee Subdivides Spending Allocations
12 Subcommittees Each Pass Appropriation Bill
Senate Passes 12 Appropriation Bills
Senate Passes Conference Report


Federal Spending
As a Percent of Total Outlays
Other Entitlements 21.0 %
Defense Discretionary 19.8 %
Net Interest 7.0 %
Other Discretionary 19.3 %
Medicare 11.6 %
Social Security 21.4 %
Source: Budget of the US Government Fiscal Year 2006


CURRENT DEFENSE BUDGET
FAR ABOVE COLD WAR AVERAGE
$ billions
$550
$500
$450
$400
$350
$300
$250
$200
$150
Korean War
Reagan Defense Buildup
Vietnam War
Cold War Avg
1952 1957 1962 1967 1972 1977 1982 1987 1992 1997 2002 2007
Source: OMB, CRS & SBC Analysis
(Constant 2000 dollars in billions, National Defense budget authority)

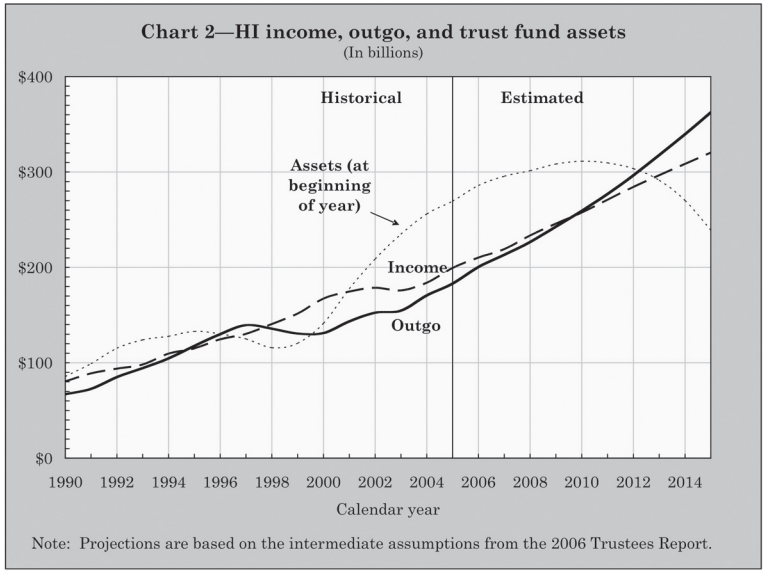
Appendix E

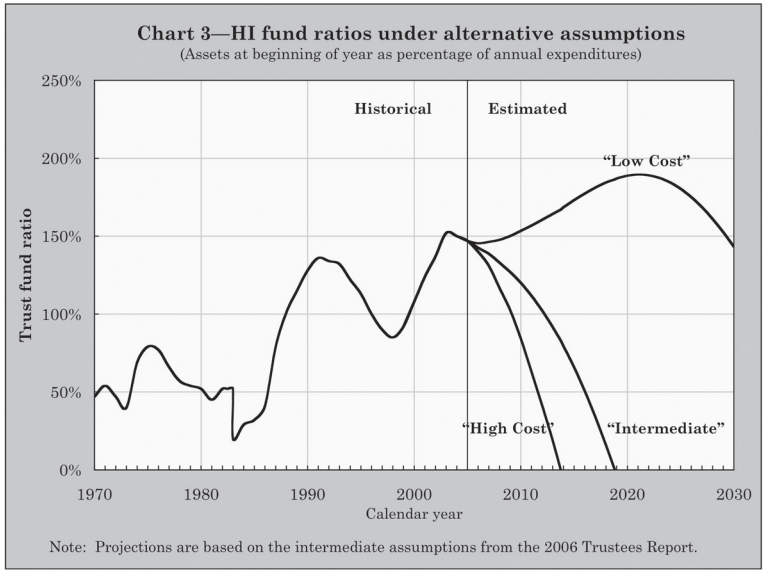
The following material accompanied Solomon M. Mussey's presentation.

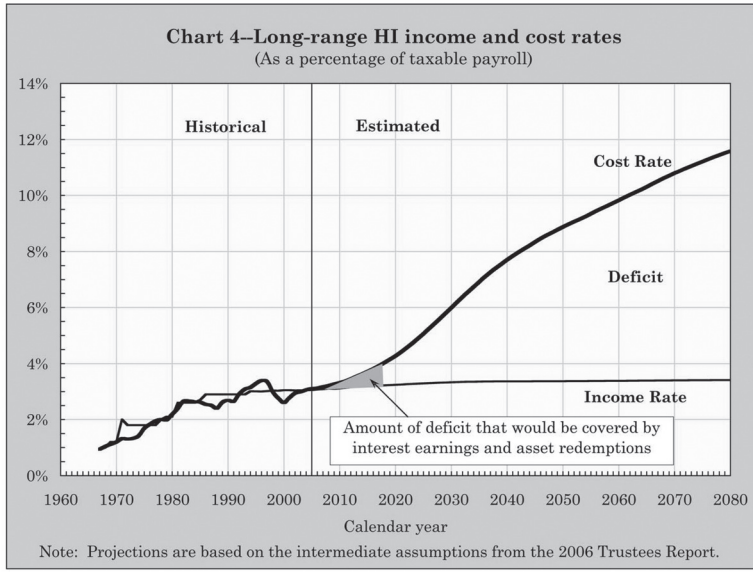


Chart 1 —Medicare enrollment, benefits, and financing

	Hospital Insurance (HI)	Supplementary Medical Insurance (SMI)
Enrollment in CY 200 5: Total ..... Proportion with services	42 million 22%	40 million 87%
Benefits *..... * Subject to certa in deductible and coinsurance requirements	Inpatient hospital care Skilled nursing care Home health care (post -institutional) Hospice care	Physician services Outpatient hospital services Home health care (general) Drug discount card and (in 2006) prescr iption drug benefit Other services, e.g. • Diagnostic tests • Medical equipment • Ambulance
CY 200 6 Financing	HI tax on covered earnings: • 1.45% payable by employees and employers, each • 2.90% payable by self -employed • Following elimination of HI contri bution base (effective 1994), HI tax applies to all earnings in covered employment Revenue from income taxation of OASDI bene fits (portion between 50% & 85%)	Part B premiums and general revenue transfers: • $88.50 per month in 200 6; covers about 25% of costs • Tied to beneficiary income in 2007and later • General revenues cover 75% of costs Part D drug premiums, general revenues, and State transfers: • Average premium in 200 6 estimated to be $25.00; covers 25% of standard benefit costs, about 1 1% of total c osts • State payments on behalf of certain beneficiaries cover about 11% of costs • General revenues cover 78% of costs


Chart 2—HI income, outgo, and trust fund assets
(In billions)
$400
$300
$200
$100
$0
Historical
Estimated
Assets (at beginning of year)
Income
Outgo
1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014
Calendar year
Note: Projections are based on the intermediate assumptions from the 2006 Trustees Report.


Chart 3—HI fund ratios under alternative assumptions
(Assets at beginning of year as percentage of annual expenditures)
250%
200%
150%
100%
50%
0%
Trust fund ratio
Historical
Estimated
"Low Cost"
"High Cost"
"Intermediate"
1970 1980 1990 2000 2010 2020 2030
Calendar year
Note: Projections are based on the intermediate assumptions from the 2006 Trustees Report.


Chart 4--Long-range HI income and cost rates
(As a percentage of taxable payroll)
14%
12%
10%
8%
6%
4%
2%
0%
Historical
Estimated
Cost Rate
Deficit
Income Rate
Amount of deficit that would be covered by interest earnings and asset redemptions
1960
1970
1980
1990
2000
2010
2020
2030
2040
2050
2060
2070
2080
Calendar year
Note: Projections are based on the intermediate assumptions from the 2006 Trustees Report.

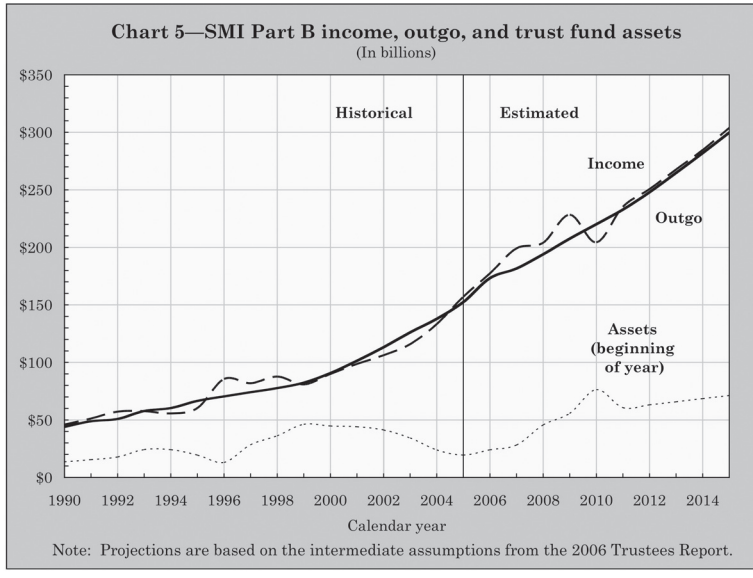
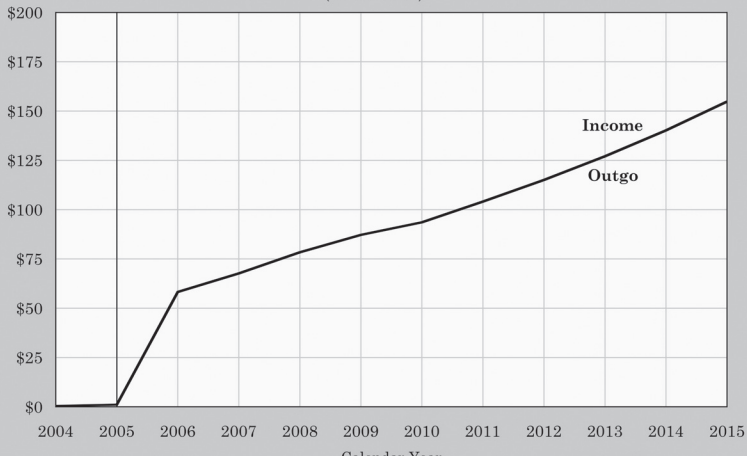
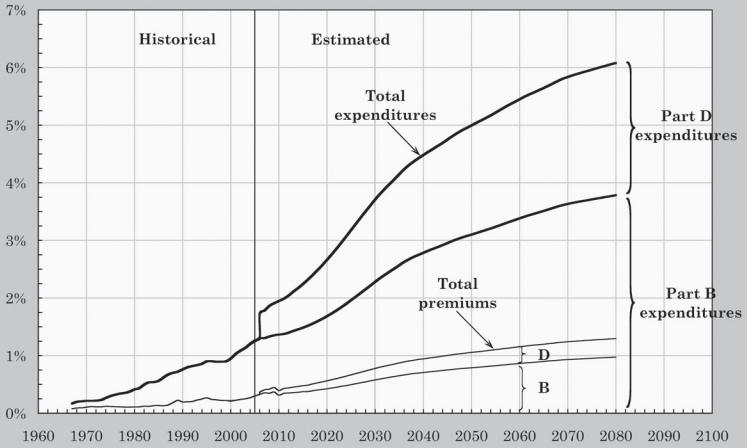

Chart 5—SMI Part B income, outgo, and trust fund assets
(In billions)
$350
$300
$250
$200
$150
$100
$50
$0
Historical
Estimated
Income
Outgo
Assets
(beginning
of year)
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
Calendar year
Note: Projections are based on the intermediate assumptions from the 2006 Trustees Report.

Chart 6--SMI Part D income and outgo
(In billions)



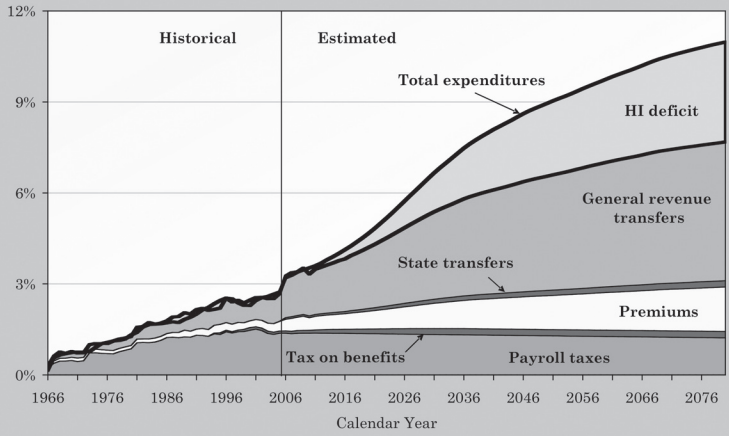
Note: Projections are based on the intermediate assumptions from the 2006 Trustees Report.

Chart 7--SMI expenditures and premium income
[As a percentage of Gross Domestic Product (GDP)]



Note: Projections are based on the intermediate assumptions from the 2006 Trustees Report.

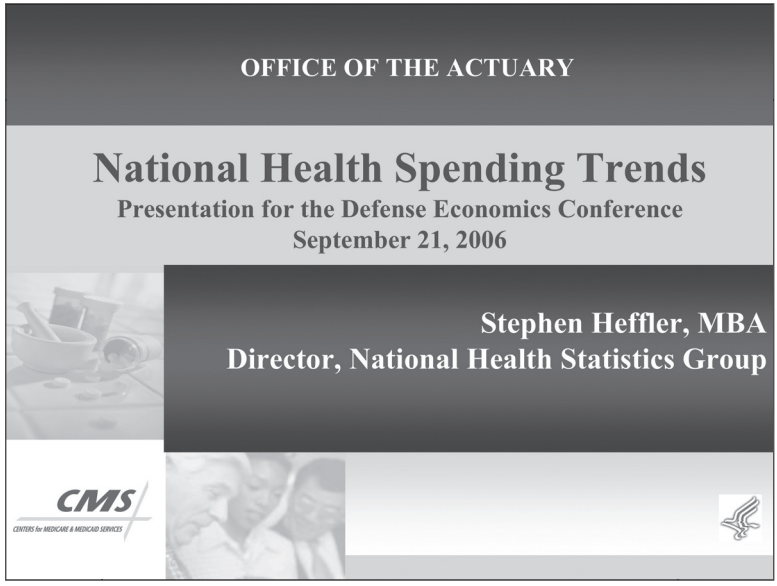
Chart 8—Medicare sources of non-interest income and expenditures
[As a percentage of Gross Domestic Product (GDP)]

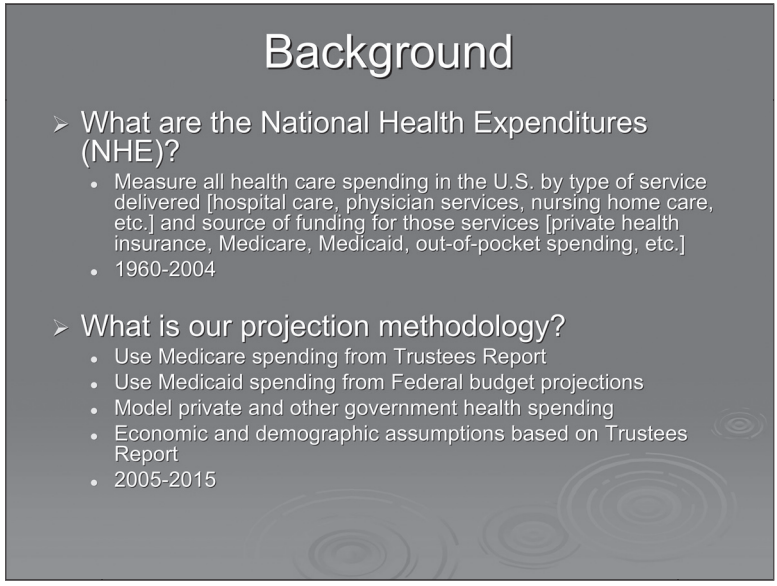


Note: Projections are based on the intermediate assumptions from the 2006 Trustees Report.

Appendix F

The following material accompanied Stephen Heffler's presentation.

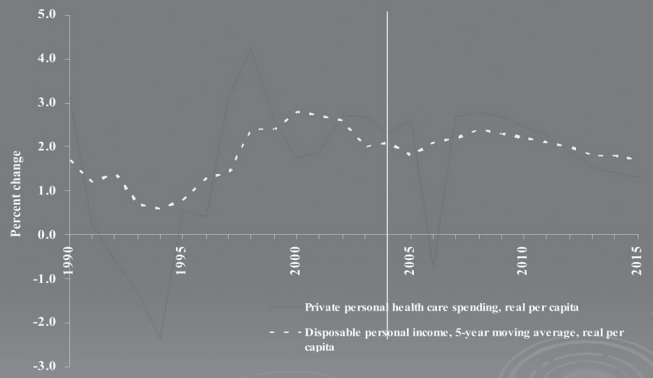




Future (and Past) Drivers of Health Care Spending Growth

- Income (economic) growth
- Price growth
- Demographics
- Public Sector (current law)

Income and Health Spending Growth, 1990-2015



Note: Personal health care spending includes all NHE spending except investment, government public health and administrative and net costs of insurance.

Source: Borger, et al. 2006. Health Spending Projections Through 2015. *Health Affairs*, web-exclusive: w61 - w73.

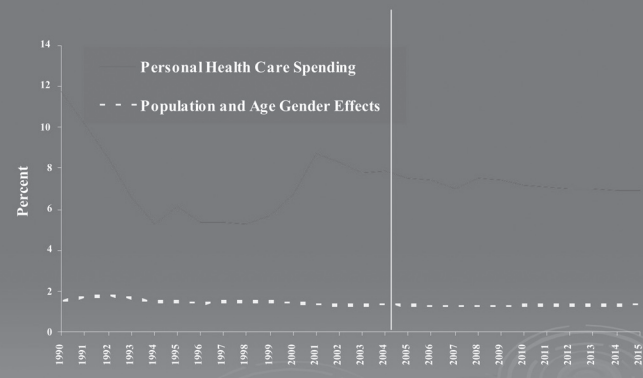
Health Care Price Growth, 1990-2015



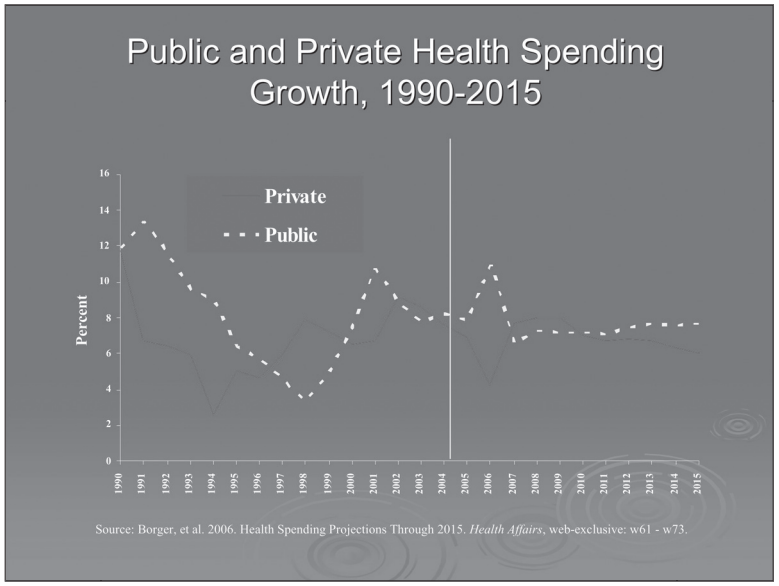
Note: Personal health care spending includes all NHE spending except investment, government public health and administrative and net costs of insurance.

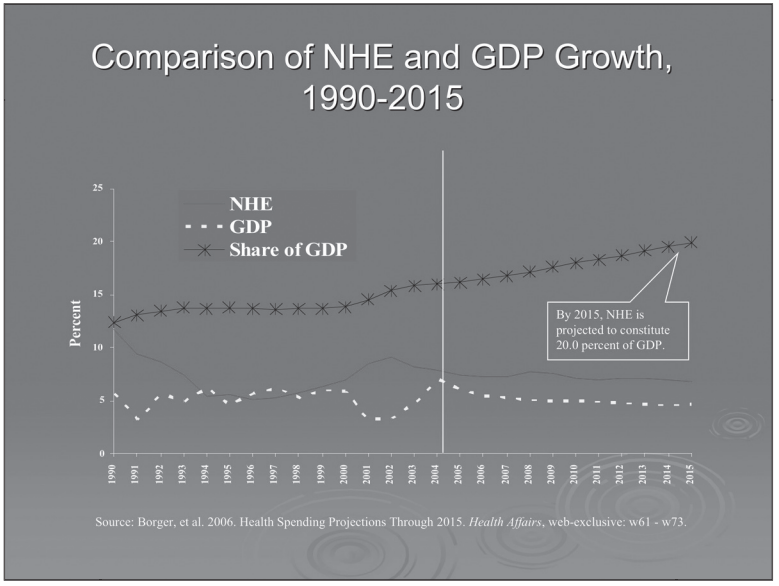
Source: Borger, et al. 2006. Health Spending Projections Through 2015. *Health Affairs*, web-exclusive: w61 - w73.

Demographic Effects on Health Spending Growth, 1990-2015



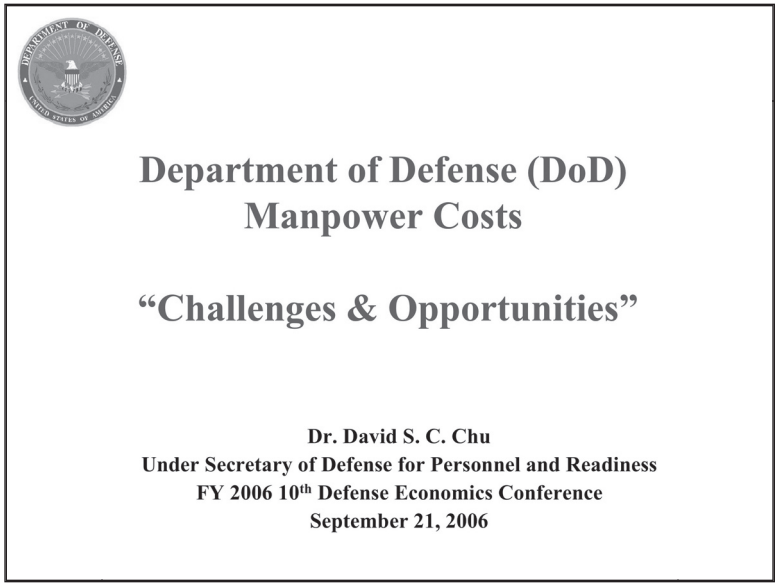
Source: Borger, et al. 2006. Health Spending Projections Through 2015. *Health Affairs*, web-exclusive: w61 - w73.

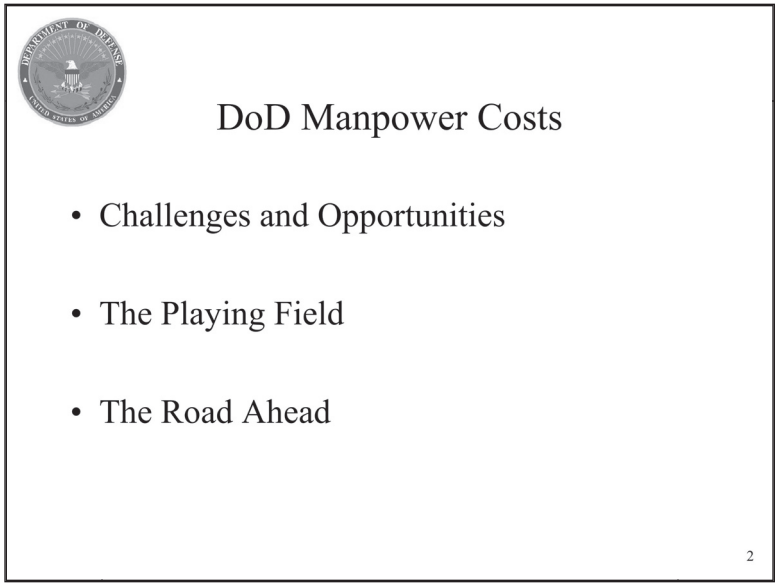

Public and Private Health Spending Growth, 1990-2015
Private
Public
Percent
0
2
4
6
8
10
12
14
16
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Source: Borger, et al. 2006. Health Spending Projections Through 2015. Health Affairs, web-exclusive: w61 - w73.


Comparison of NHE and GDP Growth, 1990-2015
NHE
GDP
Share of GDP
Percent
0
5
10
15
20
25
By 2015, NHE is projected to constitute 20.0 percent of GDP.
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Source: Borger, et al. 2006. Health Spending Projections Through 2015. Health Affairs, web-exclusive: w61 - w73.

Appendix G

The following material accompanied David S.C. Chu's presentation.



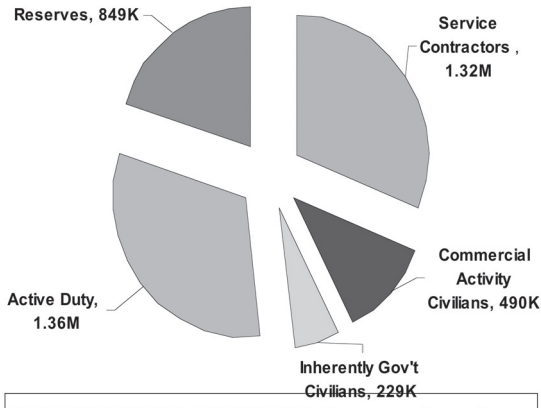


Challenges

- **Right kinds/numbers of people are essential for victory**
- **But manpower costs increasing – recapitalization at risk**
- **All Volunteer Force marketplace will be more competitive**

3

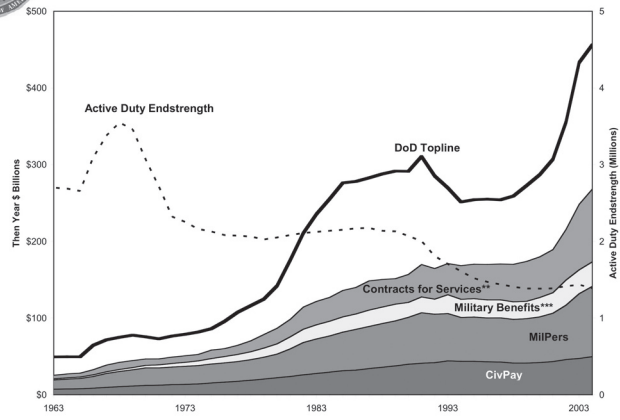
Total Force Manpower



IF MANPOWER is REQUIRED, there are alternatives.

Source: OUSD(AT&L) briefing slides on CA Report Summary Data.

Labor Costs are Substantial…



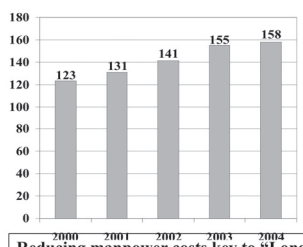
* Source: OSD(PA&E), OUSD(C) and WHS, excludes costs not on the DoD budget (e.g., VA)
** Source: WHS, which categorizes contracts as Procurement, RDT&E, or Services
*** Retirement, DHP, Family Housing

5

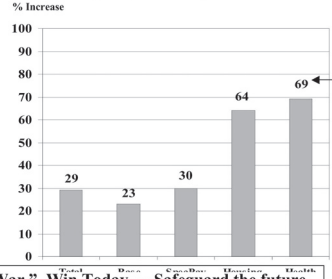
…and Rising

'04 Health Care was 15% of total manpower costs

Total Active Duty Compensation Costs 2000 - 04



Increases NOT Evenly Distributed

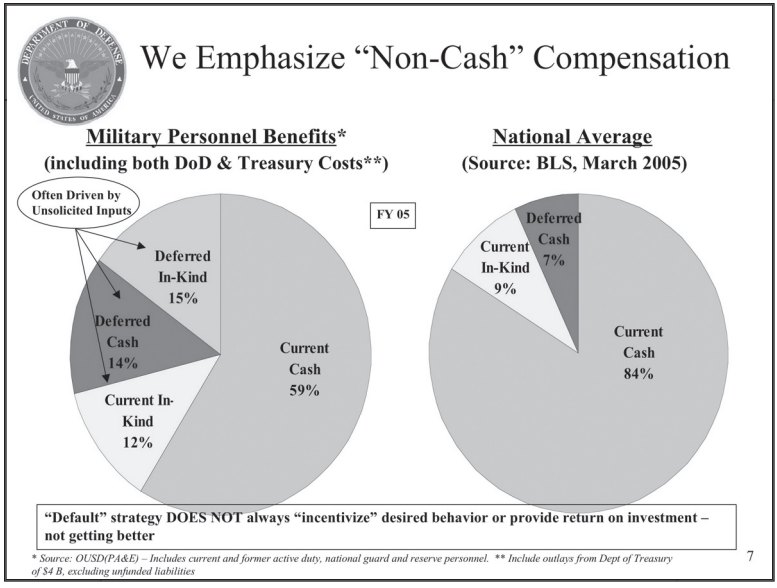


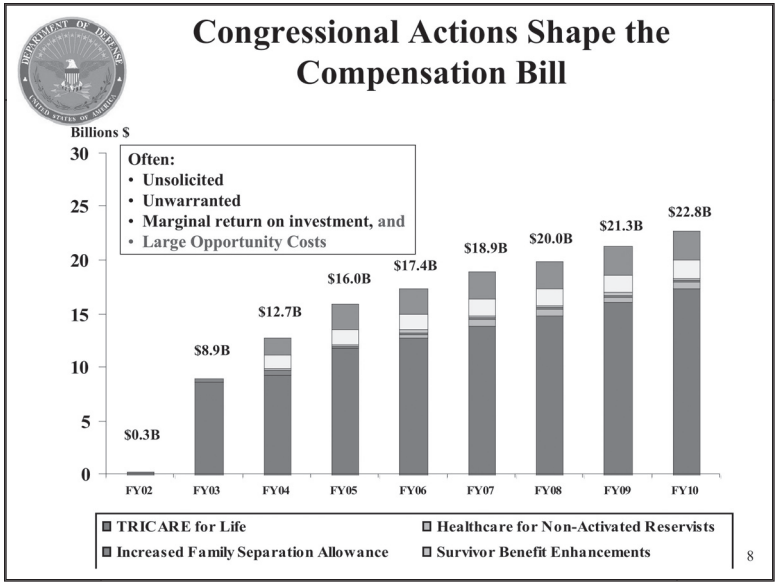
Reducing manpower costs key to "Long War." Win Today --- Safeguard the future.

One problem: our "default" compensation strategy

Source: GAO Report (05-798) on Military Compensation System

6


We Emphasize "Non-Cash" Compensation
Military Personnel Benefits*
(including both DoD & Treasury Costs**)
Often Driven by Unsolicited Inputs
FY 05
Deferred In-Kind 15%
Deferred Cash 14%
Current In-Kind 12%
Current Cash 59%
National Average
(Source: BLS, March 2005)
Deferred Cash 7%
Current In-Kind 9%
Current Cash 84%
"Default" strategy DOES NOT always "incentivize" desired behavior or provide return on investment – not getting better
* Source: OUSD(PA&E) – Includes current and former active duty, national guard and reserve personnel. ** Include outlays from Dept of Treasury of $4 B, excluding unfunded liabilities
7


Congressional Actions Shape the Compensation Bill
Billions $
Often:
• Unsolicited
• Unwarranted
• Marginal return on investment, and
• Large Opportunity Costs
$0.3B
$8.9B
$12.7B
$16.0B
$17.4B
$18.9B
$20.0B
$21.3B
$22.8B
FY02 FY03 FY04 FY05 FY06 FY07 FY08 FY09 FY10
TRICARE for Life
Healthcare for Non-Activated Reservists
Increased Family Separation Allowance
Survivor Benefit Enhancements
8

The Road Ahead – "Without Help"

- **First --- incentivize "decision maker" behavior --- institution wide and throughout "PPBE"**

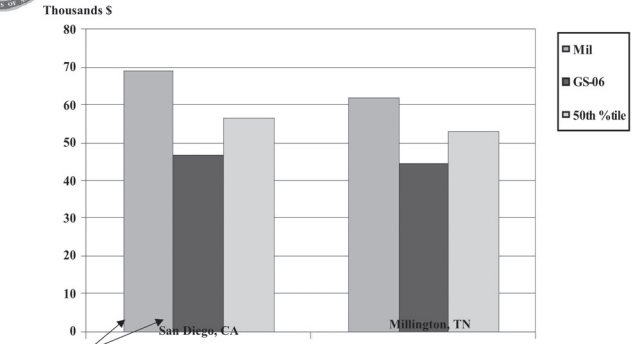
THEN

- **Work "demand side"**
- **Challenge assumptions**
- **Focus on desired output, not just "required manpower"**
  - **Productivity**
  - **Technology**
  - **Process**
- **Total Force solutions --- including**
  - **"Mil-Civ" conversions**

Mil-Civ Conversions

9

Military-Civilian-Contractor Cost Comparison E-5 Yeoman, 8 YOS



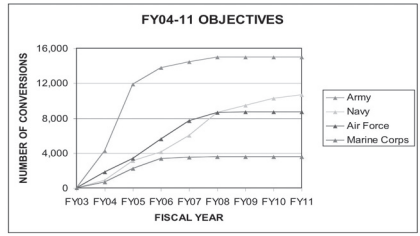
Savings – one billet ~$122K over FYDP

"Cumulative" effect over entire force an be profound

Source: HRCAT Manpower Costing Model is a cost analysis tool designed to help Navy leaders determine the most cost-effective manpower mix for the Navy.

10

Military to Civilian Conversions



Additive

MILITARY SERVICE	Service FY04-11 Objectives								STRETCH GOAL	TOTAL
	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11		
Army	4,281	11,885	13,744	14,462	14,959	15,010	15,010	15,010	16,000	31,010
Navy	905	3,135	4,095	6,035	8,668	9,482	10,237	10,640	5,633	16,273
Air Force	1,790	3,405	5,613	7,711	8,623	8,702	8,702	8,702	TBD	8,702
Marine Corps	664	2,261	2,662	3,150	3,151	3,151	3,151	3,151	1,823	4,974
Cumulative Total	7,640	20,686	26,114	31,358	35,401	36,345	37,100	37,503	23,456	60,959

As of March 2006

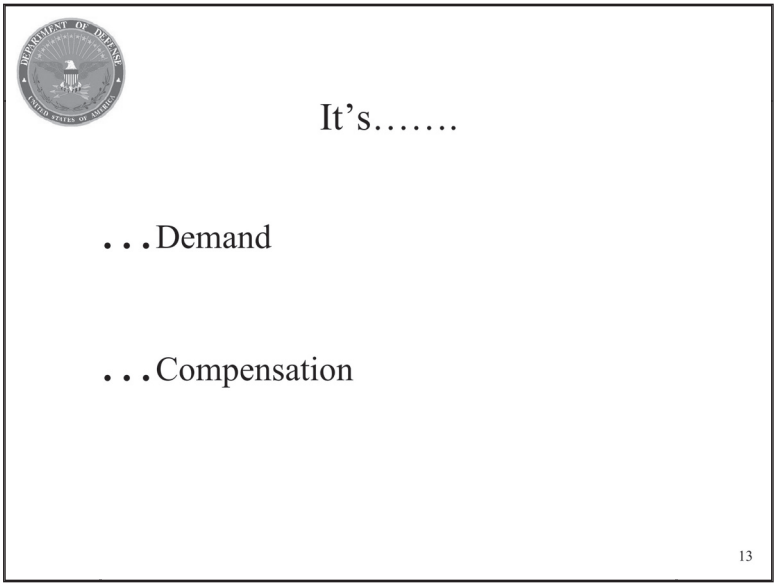
11

The Road Ahead – "With Help"

- **"Roll back/push back" mandates ---<u>including</u>**
  - **Pre-65 Retiree TRICARE cost sharing to 1996 baseline** — $20B Thru FY13
  - **Survivor Benefit Plan & Indemnity Compensation Offset** — $6-8B Next 10 yrs
  - **Expansion of TRICARE benefit to <u>all</u> Selected Reserve** — $1B/yr by 2012
- **Promote compensation strategy that incentivizes desired behavior – delivers return on investment ---<u>including</u>**
  - **Non-disability retirement reform**
  - **Reward performance – NOT longevity**
  - **More flexibility for personnel management**

"The Market" will dictate Future Labor Costs…we must – shape our demand and frame a complementary compensation and personnel strategy

12


It's…….
. . . Demand
. . . Compensation
13

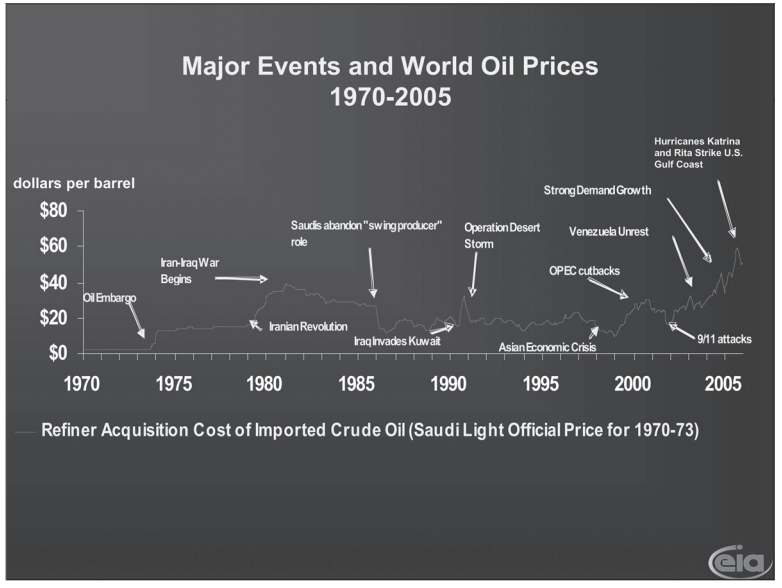
Appendix H

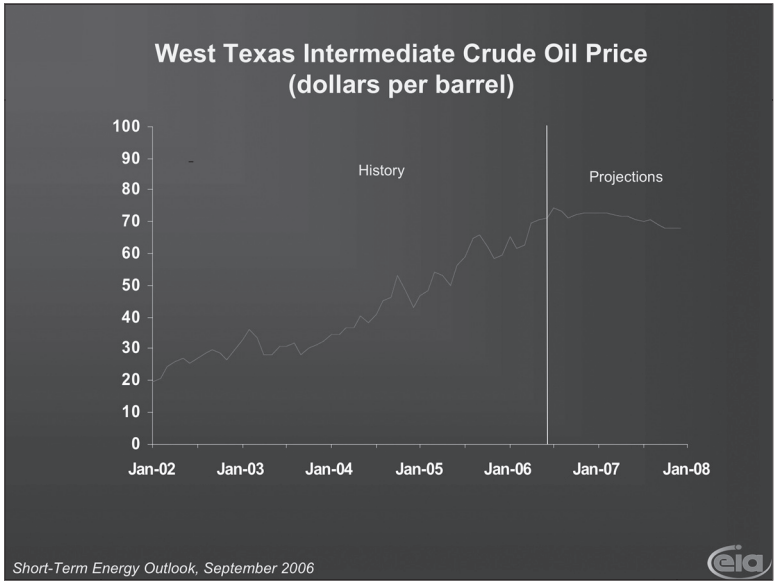
The following material accompanied Guy F. Caruso's presentation.

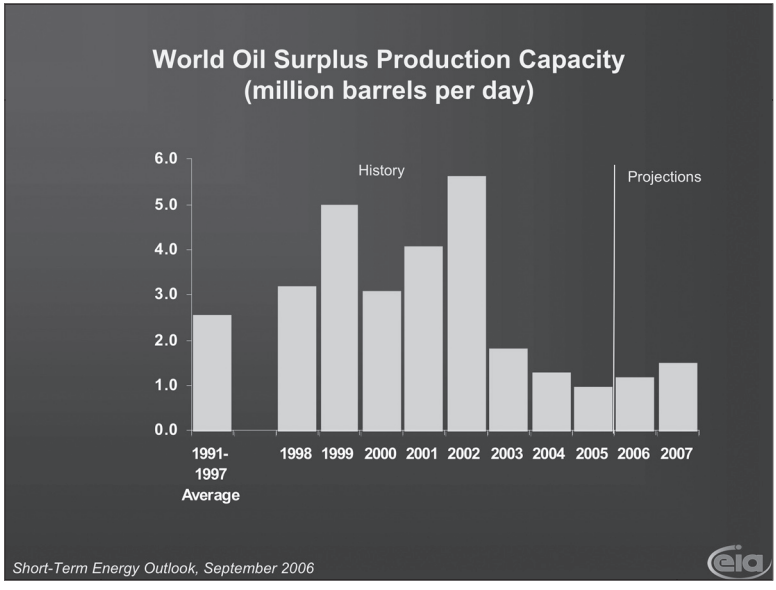
Outlook for Energy Markets

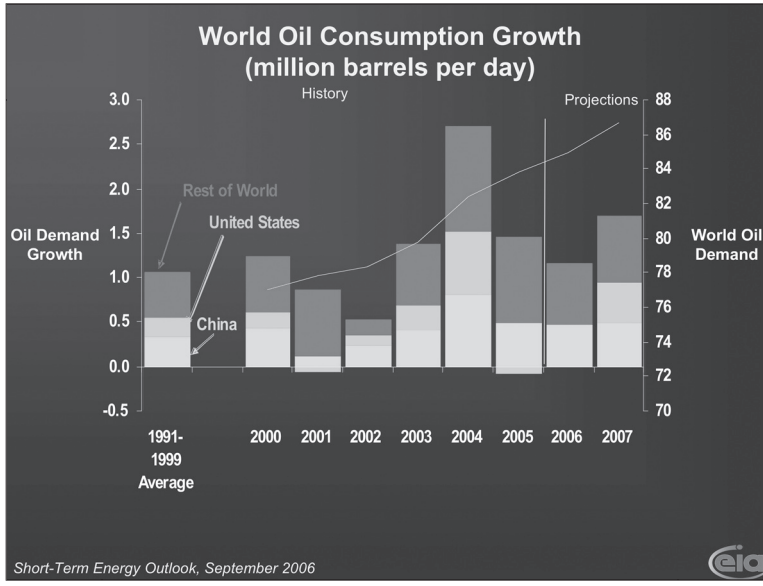
Guy Caruso, Administrator
Energy Information Administration

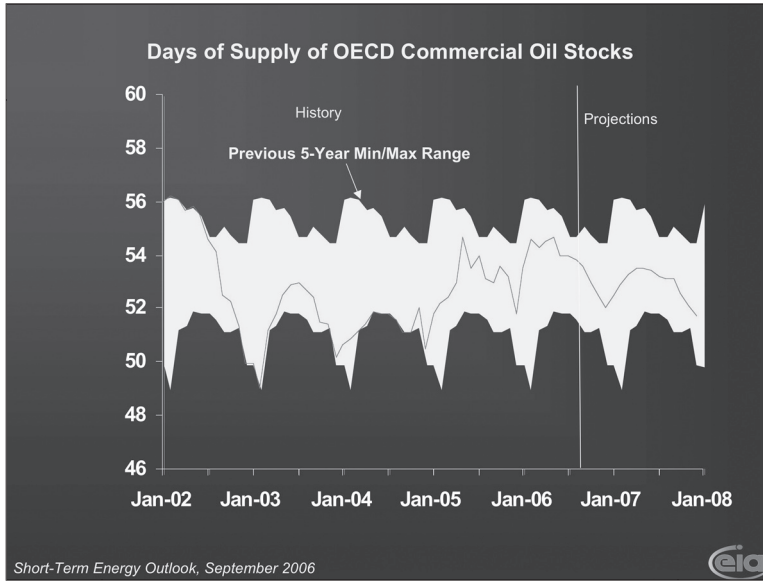
FY 2006 Defense Economics Conference
September 21, 2006
Alexandria, VA

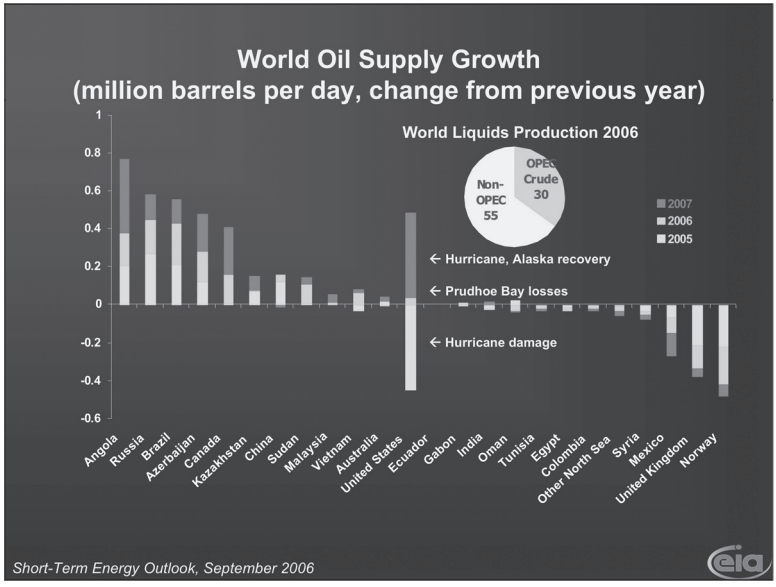


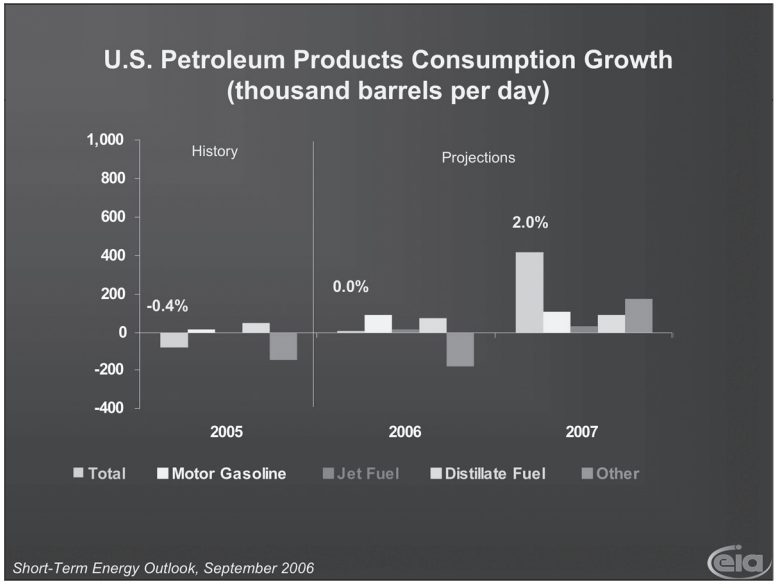

West Texas Intermediate Crude Oil Price
(dollars per barrel)
100
90
80
70
60
50
40
30
20
10
0
History
Projections
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Short-Term Energy Outlook, September 2006
eia

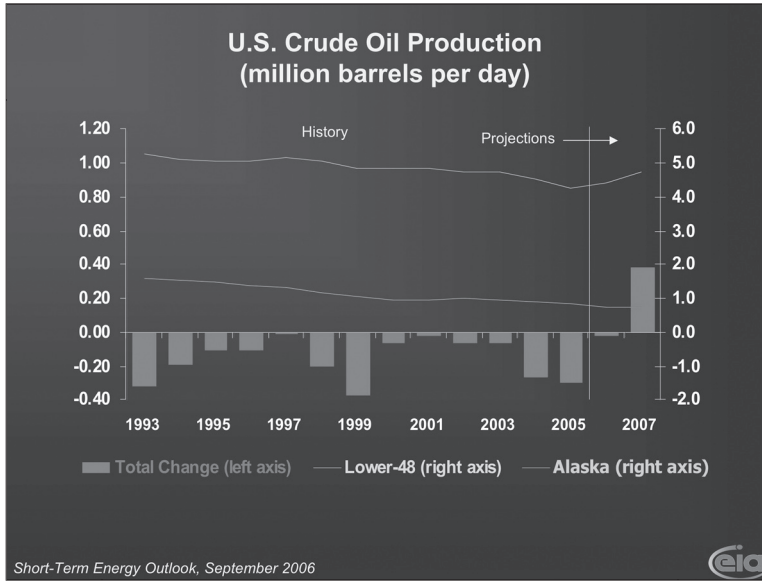

World Oil Surplus Production Capacity
(million barrels per day)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
History
Projections
1991-1997 Average
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
Short-Term Energy Outlook, September 2006
eia

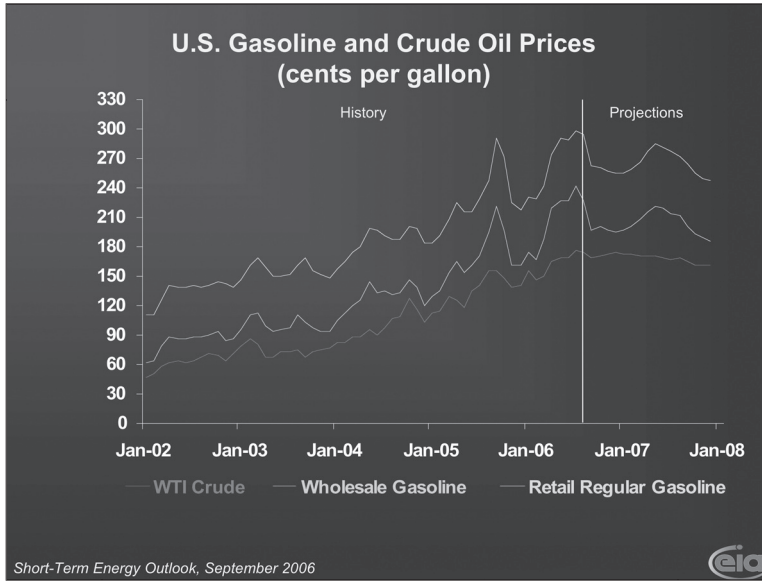

World Oil Consumption Growth
(million barrels per day)
History
Projections
Rest of World
United States
China
Oil Demand Growth
World Oil Demand
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
88
86
84
82
80
78
76
74
72
70
1991-1999 Average
2000
2001
2002
2003
2004
2005
2006
2007
Short-Term Energy Outlook, September 2006

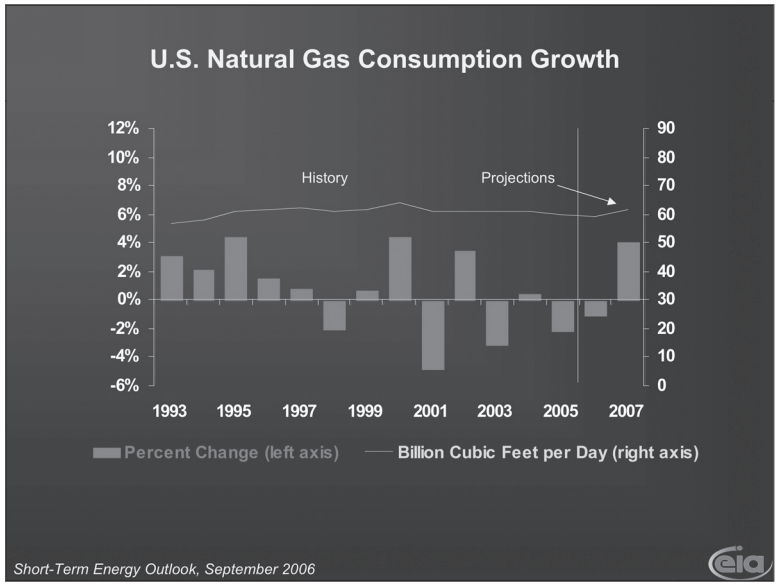

Days of Supply of OECD Commercial Oil Stocks
History
Projections
Previous 5-Year Min/Max Range
60
58
56
54
52
50
48
46
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Short-Term Energy Outlook, September 2006

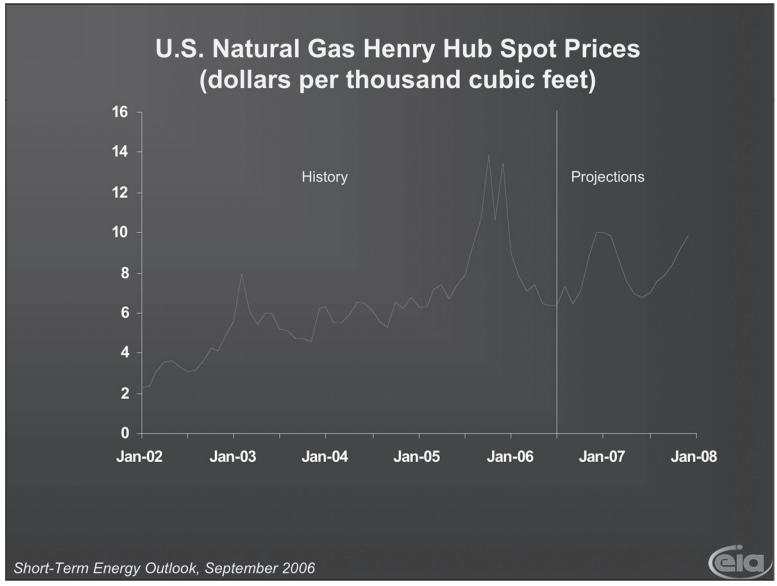

World Oil Supply Growth
(million barrels per day, change from previous year)
World Liquids Production 2006
Non-OPEC 55
OPEC Crude 30
2007
2006
2005
← Hurricane, Alaska recovery
← Prudhoe Bay losses
← Hurricane damage
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
Angola
Russia
Brazil
Azerbaijan
Canada
Kazakhstan
China
Sudan
Malaysia
Vietnam
Australia
United States
Ecuador
Gabon
India
Oman
Tunisia
Egypt
Colombia
Other North Sea
Syria
Mexico
United Kingdom
Norway
Short-Term Energy Outlook, September 2006

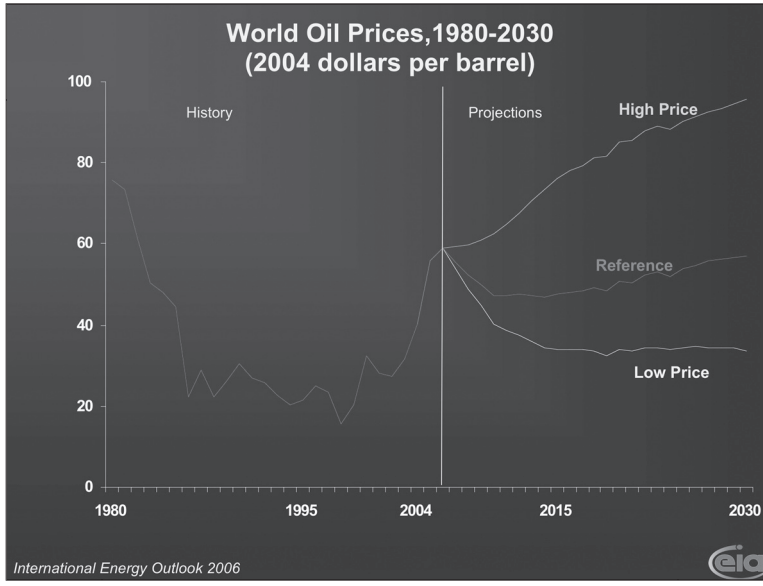

U.S. Petroleum Products Consumption Growth
(thousand barrels per day)
1,000
800
600
400
200
0
-200
-400
History
Projections
-0.4%
0.0%
2.0%
2005
2006
2007
Total
Motor Gasoline
Jet Fuel
Distillate Fuel
Other
Short-Term Energy Outlook, September 2006

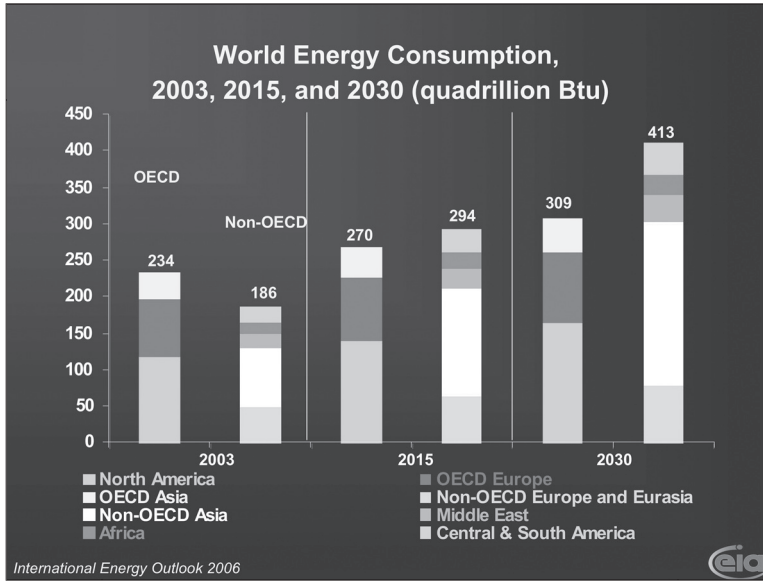

U.S. Crude Oil Production
(million barrels per day)
History
Projections
1.20
1.00
0.80
0.60
0.40
0.20
0.00
-0.20
-0.40
6.0
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
1993
1995
1997
1999
2001
2003
2005
2007
Total Change (left axis)
Lower-48 (right axis)
Alaska (right axis)
Short-Term Energy Outlook, September 2006

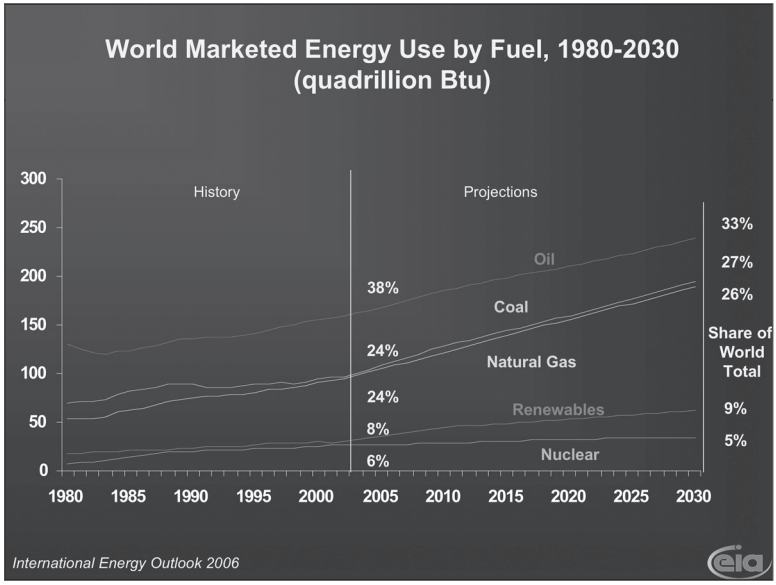

U.S. Gasoline and Crude Oil Prices
(cents per gallon)
History
Projections
330
300
270
240
210
180
150
120
90
60
30
0
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
WTI Crude
Wholesale Gasoline
Retail Regular Gasoline
Short-Term Energy Outlook, September 2006

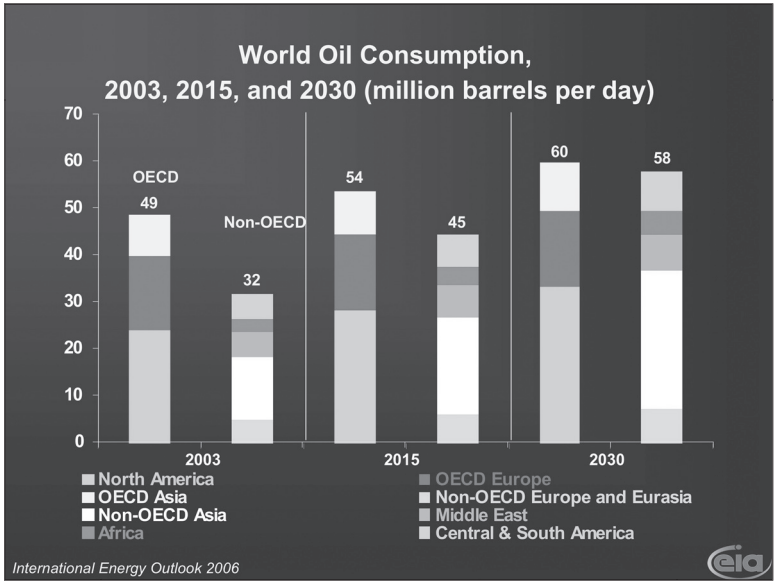

U.S. Natural Gas Consumption Growth
12%
10%
8%
6%
4%
2%
0%
-2%
-4%
-6%
90
80
70
60
50
40
30
20
10
0
History
Projections
1993
1995
1997
1999
2001
2003
2005
2007
Percent Change (left axis)
Billion Cubic Feet per Day (right axis)
Short-Term Energy Outlook, September 2006

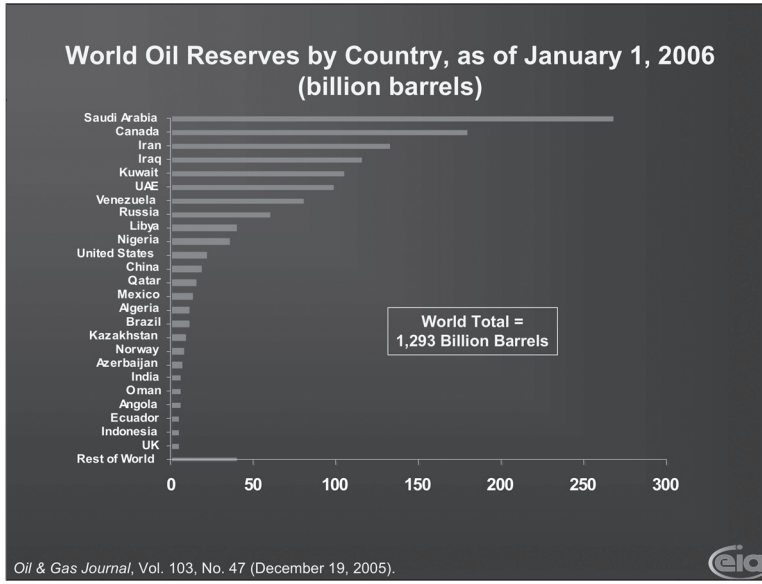

U.S. Natural Gas Henry Hub Spot Prices
(dollars per thousand cubic feet)
16
14
12
10
8
6
4
2
0
History
Projections
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Short-Term Energy Outlook, September 2006

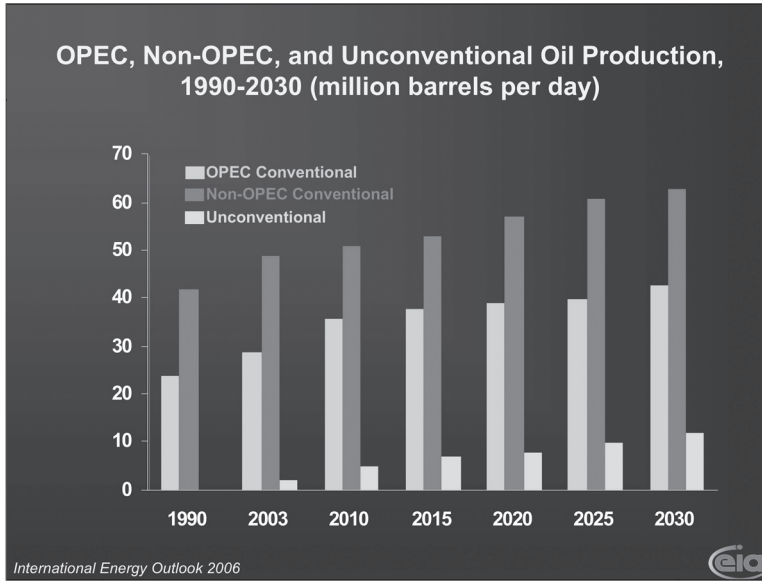

World Oil Prices,1980-2030
(2004 dollars per barrel)
100
80
60
40
20
0
History
Projections
High Price
Reference
Low Price
1980
1995
2004
2015
2030
International Energy Outlook 2006

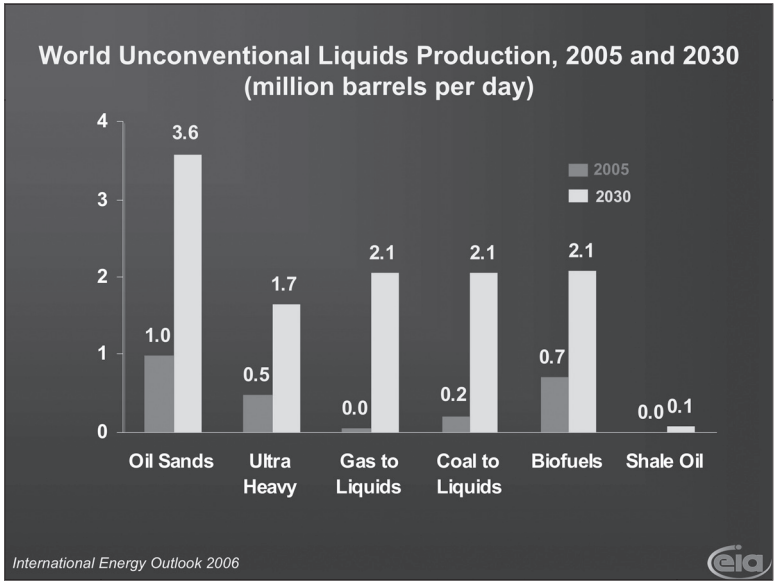

World Energy Consumption,
2003, 2015, and 2030 (quadrillion Btu)
450
400
350
300
250
200
150
100
50
0
OECD
Non-OECD
234
186
270
294
309
413
2003
2015
2030
North America
OECD Asia
Non-OECD Asia
Africa
OECD Europe
Non-OECD Europe and Eurasia
Middle East
Central & South America
International Energy Outlook 2006

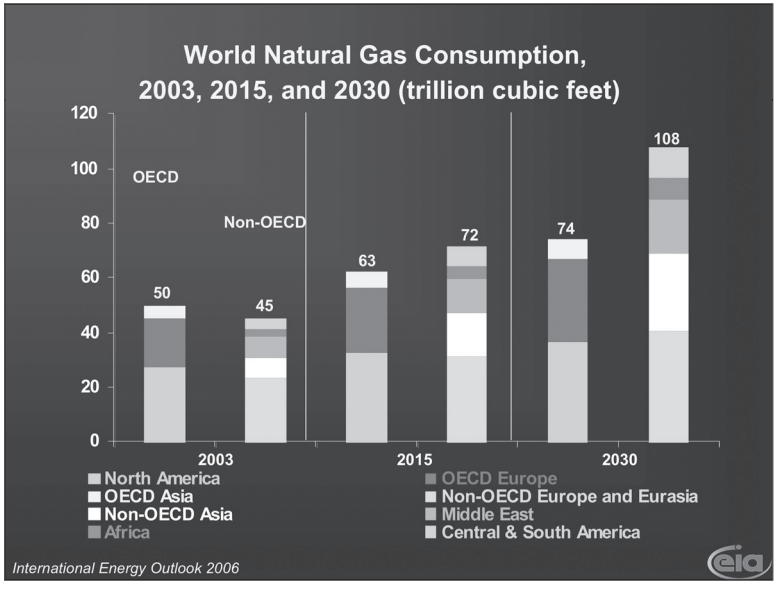

World Marketed Energy Use by Fuel, 1980-2030
(quadrillion Btu)
History
Projections
Oil
Coal
Natural Gas
Renewables
Nuclear
38%
24%
24%
8%
6%
33%
27%
26%
9%
5%
Share of World Total
300
250
200
150
100
50
0
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
2030
International Energy Outlook 2006

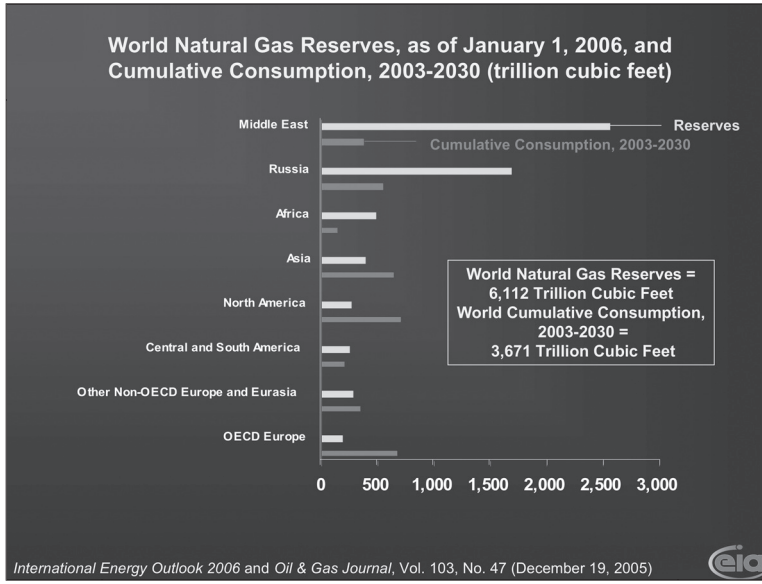

World Oil Consumption,
2003, 2015, and 2030 (million barrels per day)
OECD
Non-OECD
49
32
54
45
60
58
70
60
50
40
30
20
10
0
2003
2015
2030
North America
OECD Asia
Non-OECD Asia
Africa
OECD Europe
Non-OECD Europe and Eurasia
Middle East
Central & South America
International Energy Outlook 2006

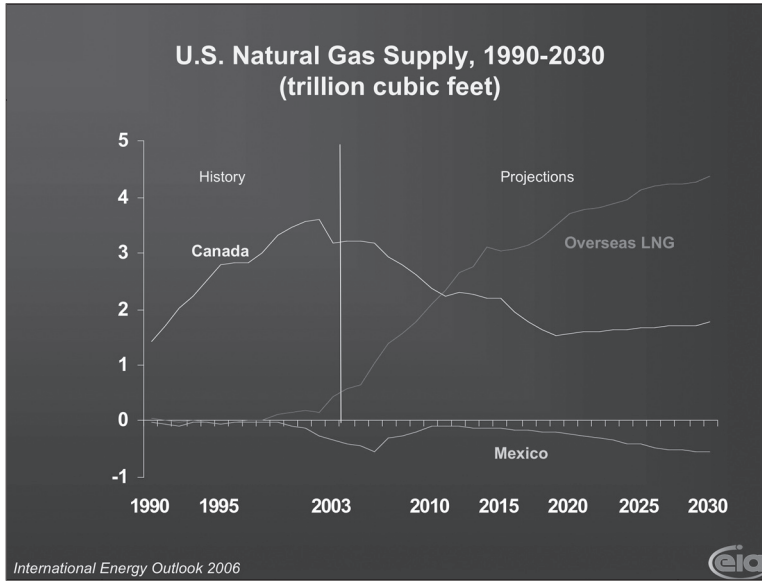

World Oil Reserves by Country, as of January 1, 2006
(billion barrels)
Saudi Arabia
Canada
Iran
Iraq
Kuwait
UAE
Venezuela
Russia
Libya
Nigeria
United States
China
Qatar
Mexico
Algeria
Brazil
Kazakhstan
Norway
Azerbaijan
India
Oman
Angola
Ecuador
Indonesia
UK
Rest of World
World Total =
1,293 Billion Barrels
0
50
100
150
200
250
300
Oil & Gas Journal, Vol. 103, No. 47 (December 19, 2005).

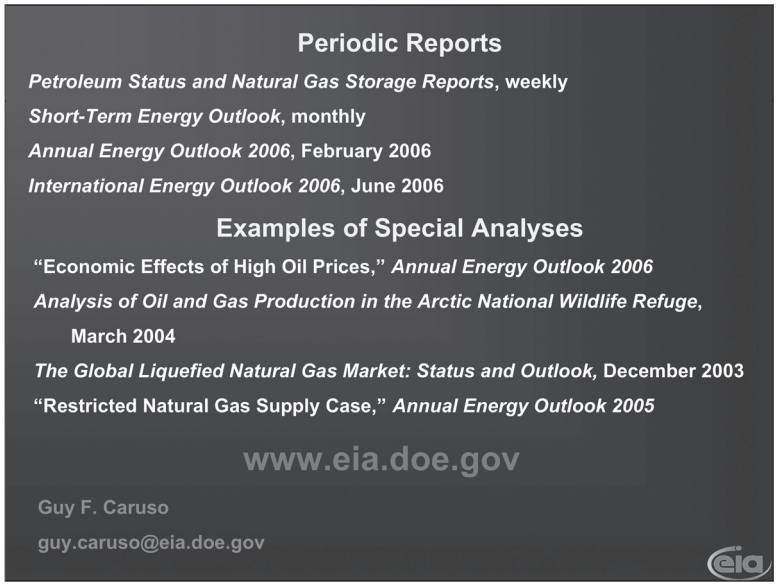

OPEC, Non-OPEC, and Unconventional Oil Production,
1990-2030 (million barrels per day)
OPEC Conventional
Non-OPEC Conventional
Unconventional
70
60
50
40
30
20
10
0
1990
2003
2010
2015
2020
2025
2030
International Energy Outlook 2006


World Unconventional Liquids Production, 2005 and 2030
(million barrels per day)
4
3
2
1
0
3.6
1.0
1.7
0.5
2.1
0.0
2.1
0.2
2.1
0.7
0.0
0.1
2005
2030
Oil Sands
Ultra Heavy
Gas to Liquids
Coal to Liquids
Biofuels
Shale Oil
International Energy Outlook 2006


World Natural Gas Consumption,
2003, 2015, and 2030 (trillion cubic feet)
120
100
80
60
40
20
0
OECD
Non-OECD
50
45
63
72
74
108
2003
2015
2030
North America
OECD Asia
Non-OECD Asia
Africa
OECD Europe
Non-OECD Europe and Eurasia
Middle East
Central & South America
International Energy Outlook 2006


World Natural Gas Reserves, as of January 1, 2006, and Cumulative Consumption, 2003-2030 (trillion cubic feet)
Middle East
Russia
Africa
Asia
North America
Central and South America
Other Non-OECD Europe and Eurasia
OECD Europe
Reserves
Cumulative Consumption, 2003-2030
World Natural Gas Reserves = 6,112 Trillion Cubic Feet
World Cumulative Consumption, 2003-2030 = 3,671 Trillion Cubic Feet
0
500
1,000
1,500
2,000
2,500
3,000
International Energy Outlook 2006 and Oil & Gas Journal, Vol. 103, No. 47 (December 19, 2005)


U.S. Natural Gas Supply, 1990-2030 (trillion cubic feet)
5
4
3
2
1
0
-1
History
Projections
Canada
Overseas LNG
Mexico
1990
1995
2003
2010
2015
2020
2025
2030
International Energy Outlook 2006


Periodic Reports
Petroleum Status and Natural Gas Storage Reports, weekly
Short-Term Energy Outlook, monthly
Annual Energy Outlook 2006, February 2006
International Energy Outlook 2006, June 2006
Examples of Special Analyses
"Economic Effects of High Oil Prices," Annual Energy Outlook 2006
Analysis of Oil and Gas Production in the Arctic National Wildlife Refuge, March 2004
The Global Liquefied Natural Gas Market: Status and Outlook, December 2003
"Restricted Natural Gas Supply Case," Annual Energy Outlook 2005
www.eia.doe.gov
Guy F. Caruso
guy.caruso@eia.doe.gov
eia

Appendix I

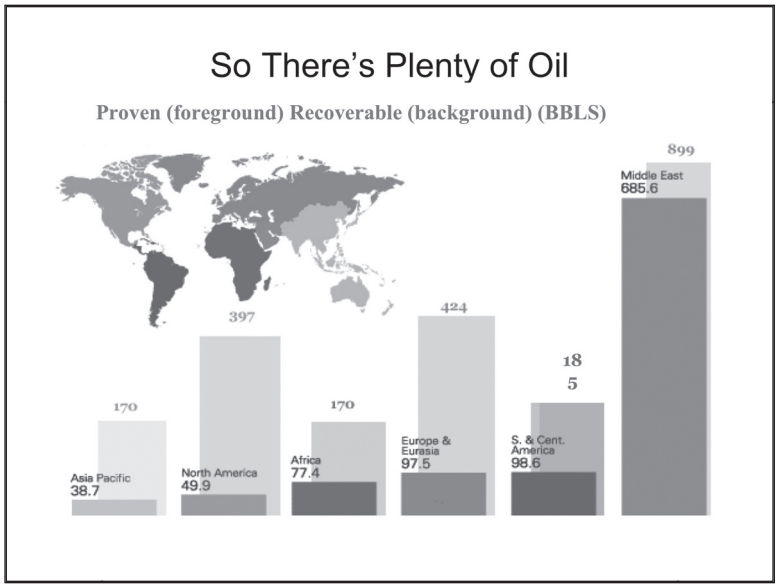
The following material accompanied John L. Rafuse's presentation.

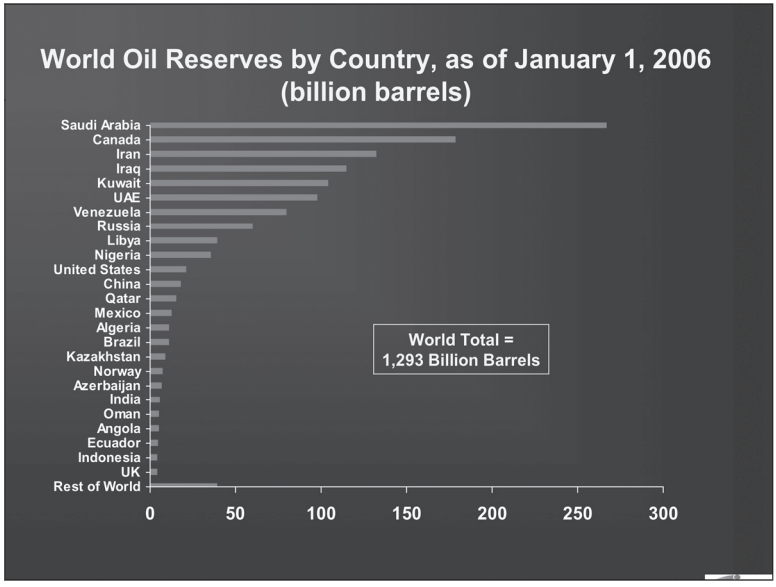
What's Oil Got to do With It?

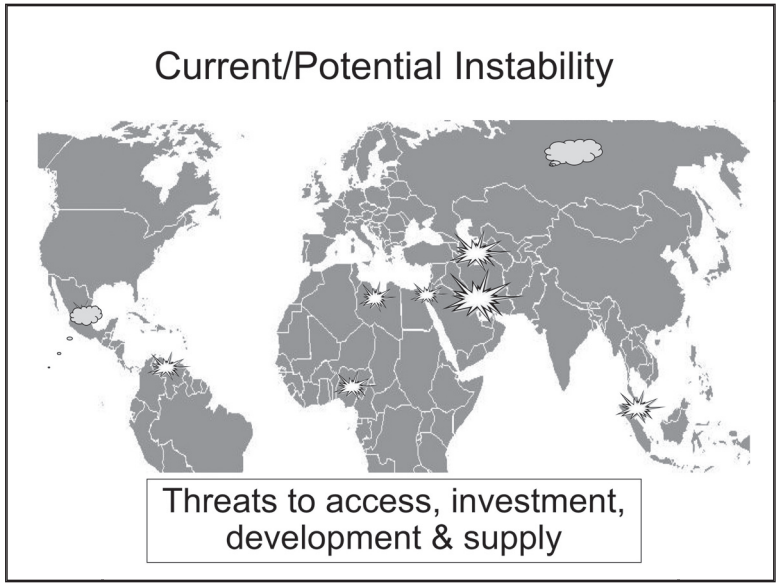
Jack Rafuse
IDA/OSD(PA&E) Panel Session:
Energy in DOD's Future in a Changing Macroeconomic Environment
21 September 2006

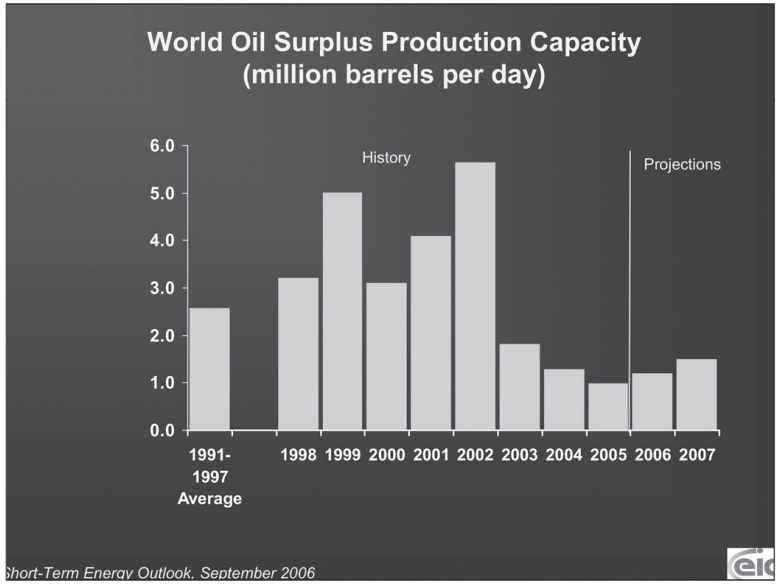
World Oil Resources (BBL)

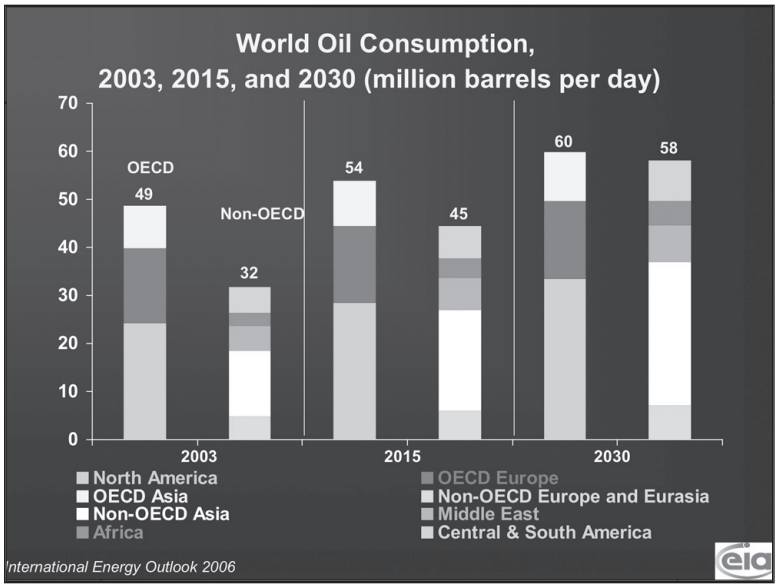
- 1970 550 Proved
  (885 BBL used since 1970)
- 2006 1293 Proved
  1300 Undiscovered
  3700 Unconventional


So There's Plenty of Oil
Proven (foreground) Recoverable (background) (BBLS)
Asia Pacific
38.7
170
North America
49.9
397
Africa
77.4
170
Europe & Eurasia
97.5
424
S. & Cent. America
98.6
18
5
Middle East
685.6
899


World Oil Reserves by Country, as of January 1, 2006 (billion barrels)
Saudi Arabia
Canada
Iran
Iraq
Kuwait
UAE
Venezuela
Russia
Libya
Nigeria
United States
China
Qatar
Mexico
Algeria
Brazil
Kazakhstan
Norway
Azerbaijan
India
Oman
Angola
Ecuador
Indonesia
UK
Rest of World
World Total =
1,293 Billion Barrels
0
50
100
150
200
250
300


Current/Potential Instability
Threats to access, investment, development & supply


World Oil Surplus Production Capacity
(million barrels per day)
History
Projections
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1991-1997 Average
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
Short-Term Energy Outlook, September 2006



DOD O&M Budgets (Selected Years)
Current $B

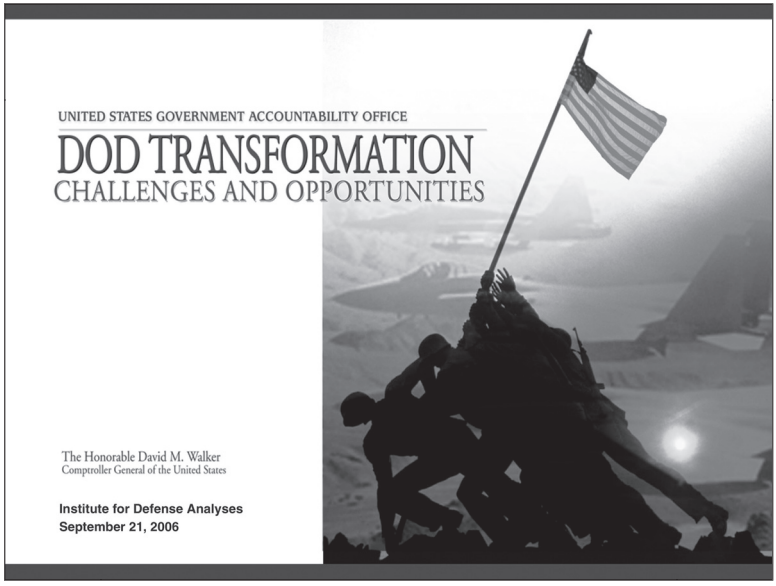
• 1970	21,516	
• 1975	26,153	
• 1980	46,606	
• 1985	77,638	
• 1990	88,531	(Energy Purchases@ Cost)
• 1995	93,959	
• 2000	106,791	4,592
• 2005	197,848	10,151

DOD O&M Budgets (Selected Years)
Constant (2007) $B

- 1970 117,124
- 1975 97,007
- 1980 108,885
- 1985 145,005
- 1990 131,916
- 2000 133,402
- 2005 209,515

Appendix J

The following material accompanied David M. Walker's presentation.

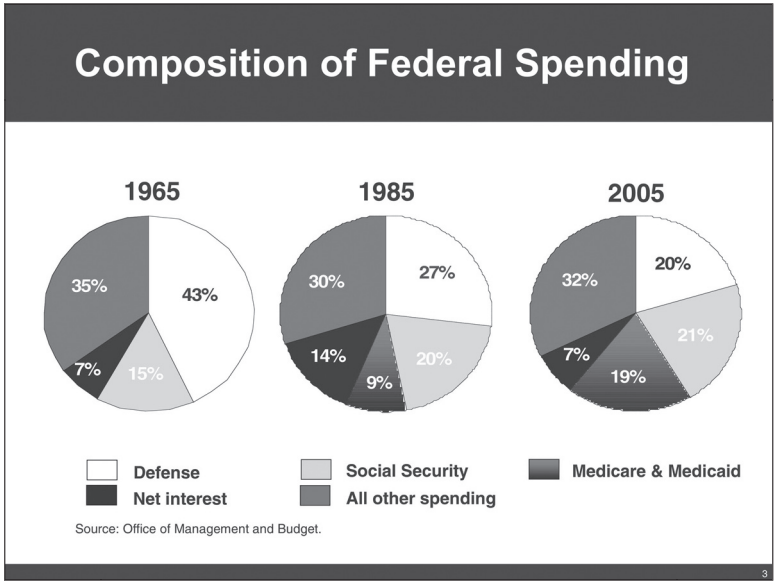


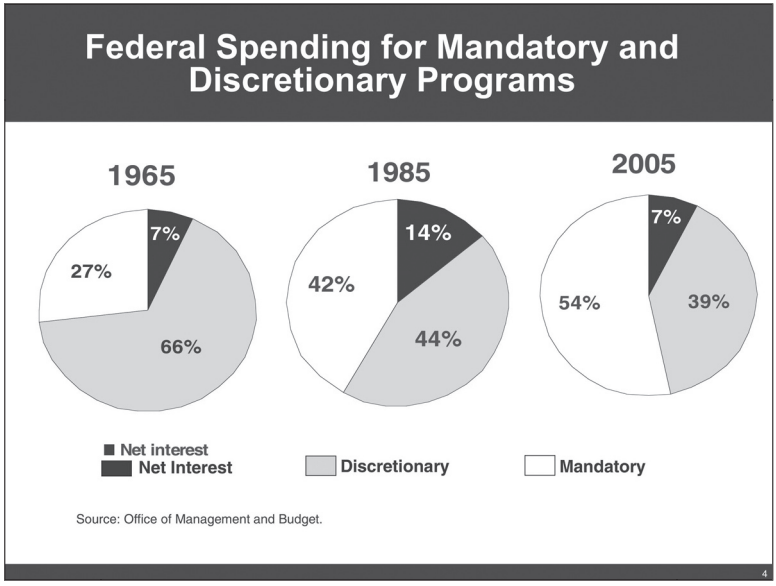
The Case for Change

The federal government is on a "burning platform," and the status quo way of doing business is unacceptable for a variety of reasons, including:

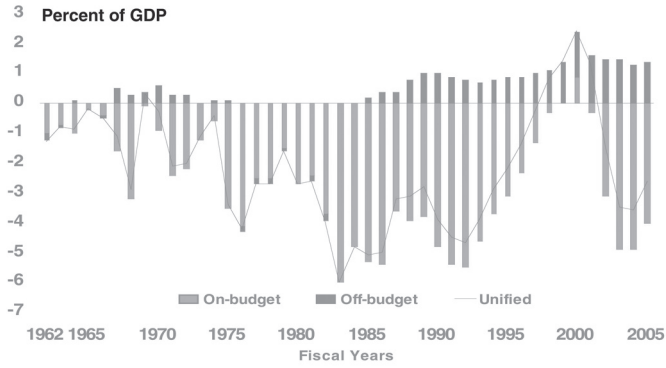
- Past fiscal trends and significant long-range challenges
- Rising public expectations for demonstrable results and enhanced responsiveness
- Selected trends and challenges having no boundaries
- Additional resource demands due to Iraq, Afghanistan, incremental homeland security needs, and recent natural disasters in the United States
- Numerous government performance/accountability and high risk challenges
- Outdated federal organizational structures, policies, and practices

2


Composition of Federal Spending
1965
1985
2005
35%
43%
7%
15%
30%
27%
14%
20%
9%
32%
20%
21%
7%
19%
Defense
Net interest
Social Security
All other spending
Medicare & Medicaid
Source: Office of Management and Budget.
3


Federal Spending for Mandatory and Discretionary Programs
1965
1985
2005
7%
27%
66%
14%
42%
44%
7%
54%
39%
Net interest
Net Interest
Discretionary
Mandatory
Source: Office of Management and Budget.
4

Surplus or Deficit as a Share of GDP
Fiscal Years 1962-2005



Source: Office of Management and Budget

5

Fiscal Year 2004 and 2005 Deficits and Net Operating Costs

	Fiscal Year 2004	Fiscal Year 2005
	($ Billion)	
On-Budget Deficit	(568)	(494)
Off-Budget Surplus*	155	175
Unified Deficit	(413)	(318)
Net Operating Cost	(616)	(760)

*Includes $151 billion in fiscal year 2004 and $173 billion in fiscal year 2005 in Social Security surpluses and $4 billion in fiscal year 2004 and $2 billion in fiscal year 2005 in Postal Service surpluses.

Sources: The Office of Management and Budget and the Department of the Treasury.

6

Estimated Fiscal Exposures
($ trillions)

	2000	2005
• Explicit liabilities	$6.9	$9.9
• Publicly held debt • Military & civilian pensions & retiree health • Other		
• Commitments & contingencies	0.5	0.9
• E.g., PBGC, undelivered orders		
• Implicit exposures	13.0	35.6
• Future Social Security benefits	3.8	5.7
• Future Medicare Part A benefits	2.7	8.8
• Future Medicare Part B benefits	6.5	12.4
• Future Medicare Part D benefits	--	8.7
Total	$20.4	$46.4

Source: U.S. government's consolidated financial statements (CFS).

Note: Estimates for Social Security and Medicare are at present value as of January 1 of each year as reported in the CFS and all other data are as of September 30.

7

How Big is Our Growing Fiscal Burden?

Our total fiscal burden can be translated and compared as follows:

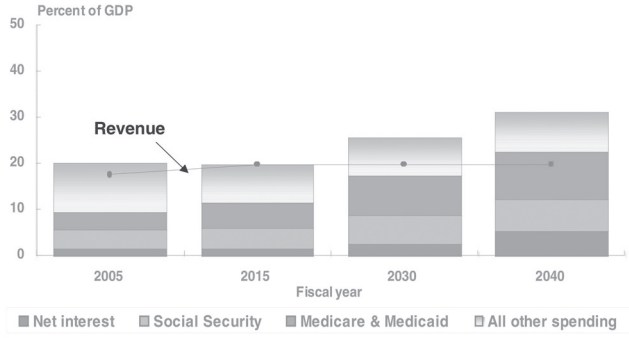
Total fiscal exposures	$46.4 trillion
Total household net worth[1]	$51.1 trillion
Burden/Net worth ratio	91 percent
Burden[2]	
Per person	$156,000
Per full-time worker	$375,000
Per household	$411,000
Income	
Median household income[3]	$44,389
Disposable personal income per capita[4]	$30,431

Notes: (1) Federal Reserve Board, Flow of Funds Accounts, Table B.100, 2005:Q3 (Dec. 8, 2005); (2) Burdens are calculated using total U.S. population as of 9/30/05, from the *U.S. Census Bureau*, full-time workers for 2004, reported by the Bureau of Economic Analysis, in NIPA table 6.5D (Aug. 4, 2005); and households for 2004, reported by the U.S. Census Bureau, in Income Poverty & Health Insurance Coverage in the US: 2004 (Aug. 2005); (3) U.S. Census Bureau, Income Poverty & Health Insurance Coverage in the US: 2004 (Aug. 2005); and (4) Bureau of Economic Analysis, Personal Income and Outlays: October 2005, table 2, 2005:Q3, (Dec.1, 2005).

Sources: GAO analysis.

8

Composition of Spending as a Share of GDP
Under Baseline Extended

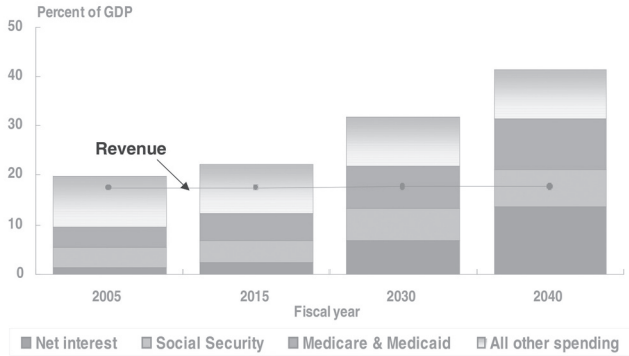


Notes: In addition to the expiration of tax cuts, revenue as a share of GDP increases through 2016 due to (1) real bracket creep, (2) more taxpayers becoming subject to the AMT, and (3) increased revenue from tax-deferred retirement accounts. After 2016, revenue as a share of GDP is held constant.

Source: GAO's August 2006 analysis.

9

Composition of Spending as a Share of GDP
Assuming Discretionary Spending Grows with GDP After 2006 and All Expiring Tax Provisions are Extended



Source: GAO's August 2006 analysis.

10

Current Fiscal Policy Is Unsustainable

- **The "Status Quo" is Not an Option**
  - We face large and growing structural deficits largely due to known demographic trends and rising health care costs.
  - GAO's simulations show that balancing the budget in 2040 could require actions as large as
    - Cutting total federal spending by 60 percent or
    - Raising federal taxes to 2 times today's level
- **Faster Economic Growth Can Help, but It Cannot Solve the Problem**
  - Closing the current long-term fiscal gap based on reasonable assumptions would require real average annual economic growth in the double digit range every year for the next 75 years.
  - During the 1990s, the economy grew at an average 3.2 percent per year.
  - As a result, we cannot simply grow our way out of this problem. Tough choices will be required.

11

The Way Forward: A Three-Pronged Approach

1. Strengthen Budget and Legislative Processes and Controls
2. Improve Financial Reporting and Performance Metrics
3. Fundamental Reexamination & Transformation for the 21st Century

Solutions Require Active Involvement from Both the Executive and Legislative Branches

12

Key National Indicators

- **WHAT**: A portfolio of economic, social, and environmental outcome-based measures that could be used to help assess the nation's and other governmental jurisdictions' position and progress
- **WHO**: Many countries and several states, regions, and localities have already undertaken related initiatives (e.g., Australia, New Zealand, Canada, United Kingdom, Oregon, Silicon Valley (California) and Boston).
- **WHY**: Development of such a portfolio of indicators could have a number of possible benefits, including
  - Serving as a framework for related strategic planning efforts
  - Enhancing performance and accountability reporting
  - Informing public policy decisions, including much needed baseline reviews of existing government policies, programs, functions, and activities
  - Facilitating public education and debate as well as an informed electorate
- **WAY FORWARD**: Consortium of key players housed by the National Academies domestically and related efforts by the OECD and others internationally.

13

Key National Indicators:
Where the World's Sole Superpower Ranks

The United States may be the only superpower, but compared to most other OECD countries on selected key economic, social, and environmental indicators, on average, the U.S. ranks

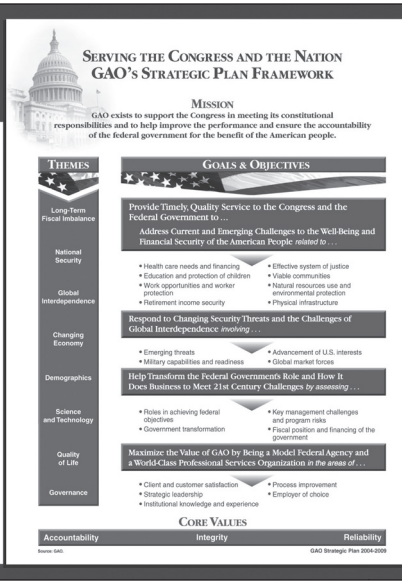
16 OUT OF 28

OECD Categories for Key Indicators (2006 OECD Factbook)			
• Population/Migration	• Energy	• Environment	• Quality of Life
• Macroeconomic Trends	• Labor Market	• Education	• Economic Globalization
• Prices	• Science & Tech.	• Public Finance	

Source: 2006 OECD Factbook

14

GAO's Strategic Plan



15

GAO's High-Risk List 2006

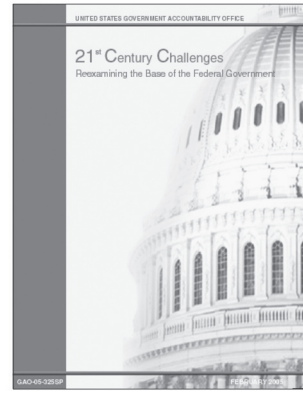
High-Risk Areas	Designated High Risk
Addressing Challenges in Broad-based Transformations	
Protecting the Federal Government's Information Systems and the Nation's Critical Infrastructures	1997
Strategic Human Capital Management[a]	2001
U.S. Postal Service Transformation Efforts and Long-Term Outlook[a]	2001
Managing Federal Real Property[a]	2003
Implementing and Transforming the Department of Homeland Security	2003
Establishing Appropriate and Effective Information-Sharing Mechanisms to Improve Homeland Security	2005
DOD Approach to Business Transformation[a]	2005
DOD Supply Chain Management (formerly Inventory Management)	1990
DOD Weapon Systems Acquisition	1990
DOD Business Systems Modernization	1995
DOD Financial Management	1995
DOD Support Infrastructure Management	1997
DOD Personnel Security Clearance Program	2005
Managing Federal Contracting More Effectively	
DOE Contract Management	1990
NASA Contract Management	1990
DOD Contract Management	1992
Management of Interagency Contracting	2005
Assessing the Efficiency and Effectiveness of Tax Law Administration	
Enforcement of Tax Laws[a, b]	1990
IRS Business Systems Modernization[c]	1995
Modernizing and Safeguarding Insurance and Benefit Programs	
Medicare Program[a]	1990
HUD Single-Family Mortgage Insurance and Rental Housing Assistance Programs	1994
Medicaid Program[a]	2003
Modernizing Federal Disability Programs[a]	2003
Pension Benefit Guaranty Corporation Single-Employer Insurance Program[a]	2003
National Flood Insurance Program	**2006**
Other	
FAA Air Traffic Control Modernization	1995

[a] Legislation is likely to be necessary, as a supplement to actions by the executive branch, in order to effectively address this high-risk area.
[b] Two high-risk areas—Collection of Unpaid Taxes and Earned Income Credit Noncompliance—have been consolidated to make this area.
[c] The IRS Financial Management high-risk area has been incorporated into this high-risk area.

16

21st Century Challenges Report

- Provides background, framework, and questions to assist in reexamining the base
- Covers entitlements & other mandatory spending, discretionary spending, and tax policies and programs
- Based on GAO's work for the Congress
- Issued February 16, 2005



17

Twelve Reexamination Areas

MISSION AREAS

- Defense
- Education & Employment
- Financial Regulation & Housing
- Health Care
- Homeland Security
- International Affairs
- Natural Resources, Energy & Environment
- Retirement & Disability
- Science & Technology
- Transportation

CROSSCUTTING AREAS

- Improving Governance
- Reexamining the Tax System

18

Generic Reexamination Criteria and Sample Questions

Relevance of purpose and the federal role

Why did the federal government initiate this program and what was the government trying to accomplish?

Have there been significant changes in the country or the world that relate to the reason for initiating it?

Measuring success

Are there outcome-based measures? If not, why?

If there are outcome-based measures, how successful is it based on these measures?

Targeting benefits

Is it well targeted to those with the greatest needs and the least capacity to meet those needs?

Affordability and cost effectiveness

Is it using the most cost-effective or net beneficial approaches when compared to other tools and program designs?

Best practices

Is the responsible entity employing prevailing best practices to discharge its responsibilities and achieve its mission?

19

Illustrative 21st Century Questions: National Defense

- How should the historical allocation of resources across services and programs be changed to reflect the results of a forward-looking comprehensive threat/risk assessment as part of DOD's capabilities-based approach to determining defense needs?
- Can DOD afford to invest in transformational systems such as the Future Combat System and national missile defense at the same time it continues to pursue large investments in legacy systems such as the F-22A and new systems like the Joint Strike Fighter, especially if cost growth and schedule delays continue at historical rates?
- Given the global availability of rapidly advancing technology, does DOD need to reconsider its approach for identifying critical technologies and protecting those technologies from being exploited in order to maintain its military superiority?

20

Selected Potential DOD Related Actions: Transformation Strategy

- Revise the current approach to developing national military strategy (e.g., order, integration)
- Take a longer range, and more enterprise-wide approach to program planning and budget integration (e.g., life cycles, opportunity costs, wants vs. needs)
- Employ a total force management approach to planning and execution (e.g., military, civilian, contractors)
- Create a Chief Management Officer to drive the business transformation process
- Revise the process for developing and communicating key changes (e.g., DOD transformation, NSPS legislative proposal)
- Reduce the number of layers, silos, and footprints
- Strengthen emphasis on horizontal and external activities (e.g., partnerships)

22

Selected Potential DOD Related Actions: Business Operations and Human Capital

- Focus on achieving real success in connection with financial management efforts (e.g., systems, controls, information, compliance and opinions)
- Differentiate between war fighting and business systems development, implementation and maintenance (e.g., resource control, project approval)
- Employ a more reasonable, strategic, and integrated approach to business information system efforts and financial audit initiatives
- Recognize the difference between approving and informing
- Get the design and implementation of the NSPS right, including modernizing and integrating the DOD, Service, domain, unit and individual performance measurement and reward systems
- Employ a more targeted and market-based approach to compensation and other key human capital strategies
- Provide for longer tours of duty in connection with key acquisitions and operations positions to strengthen responsibility and enhance (e.g. program manager)

23

Selected Potential DOD Related Actions: Acquisitions and Contracting

- Reconcile the difference between wants and needs, and affordability and sustainability on an enterprise-wide basis considering current and future threats and resource levels
- Nail down system requirements and ensure the maturity of technology in order to improve performance and enhance accountability (don't let the perfect be the enemy of the good)
- Employ spiral development and plug and play concepts to technology
- Streamline yet strengthen current commercial contracts (e.g., performance and outcome-based, appropriate risk-sharing, including cancellation clauses
- Pay performance-based contract incentives for positive outcomes
- Make it okay to pull the plug or reduce quantities of weapon systems and information systems projects when the facts and circumstances warrant it

24

Key Leadership Attributes Needed for These Challenging and Changing Times

- *Courage*
- *Integrity*
- *Creativity*
- *Stewardship*

25

Appendix K

Agenda

0800–0830	**Continental Breakfast**
0830–0915	**Welcome and Keynote** Welcome: *David L. McNicol*, IDA and *Jerry Pannullo*, OSD(PA&E) Keynote Address: *Douglas Holtz-Eakin*, Chair in International Economics and Director for Geoeconomic Studies, Council on Foreign Relations
0930–1030	**Macroeconomic Environment/Globalization (U.S. and World)** *Nariman Behravesh*, Chief Economist, Global Insight Inc. *Michael L. Mussa*, Senior Fellow, Institute for International Economics
1045–1145	**Macroeconomic Implications for the DoD Budget** *James D. Foster*, Associate Director of Economic Policy, Office of Management and Budget *Michael S. Lofgren*, Budget Analyst for Defense & Homeland Security, Senate Committee on the Budget
1145–1300	**Luncheon Presentation** *Martin S. Feldstein*, Professor of Economics, Harvard University, and President and CEO, National Bureau of Economic Research
1315–1415	**Drivers of DoD Cost Growth: Personnel Costs** *Solomon M. Mussey*, Director of the Medicare Medicaid Cost Estimates Group, Centers for Medicare & Medicaid Services *Stephen Heffler*, Director of the National Health Statistics Group, Centers for Medicare & Medicaid Services *David S.C. Chu*, Under Secretary of Defense for Personnel and Readiness

1430–1530	**Drivers of DoD Cost Growth: Fuel** *Guy F. Caruso*, Administrator, Energy Information Administration *John L. Rafuse*, Independent Energy Consultant
1545–1630	**Closing Remarks** *David M. Walker*, Comptroller General of the United States
1645–1800	**Reception**

Appendix L

Attendees

Adebayo Adedeji
Principal Analyst, Congressional Budget Office

Lieutenant Colonel Jeffrey P. Angers
Operations Research Analyst, OSD(PA&E)

Ayeh Bandeh-Ahmadi
Research Associate, Institute for Defense Analyses

Nariman Behravesh
Chief Economist, Global Insight

Russell W. Beland
Deputy Assistant Secretary of the Navy
(Manpower Analysis and Assessment)
United States Navy

Barry Berkowitz
Operations Research Analyst, OSD(PA&E)

Jerome Bracken
Adjunct Research Staff Member, Institute for Defense Analyses

Brooke Brody-Waite
National Security Program Examiner, Office of Management and Budget

Harold J. Brumm
Senior Economist, U.S. Government Accountability Office

Guy F. Caruso
Administrator, Energy Information Administration,
Department of Energy

Ching-Mei Chen
Operations Research Analyst, OSD(PA&E)

Soyong Chong
Operations Research Analyst, OSD(PA&E)

David S. C. Chu
Under Secretary of Defense , (Personnel and Readiness)
Office of the Secretary of Defense

Carl J. Dahlman
Program Executive Officer
Office of the Under Secretary of Defense (Personnel and Readiness)

Paul F. Dickens III
Member, PF Dickens, LLC

Cynthia Dion-Schwarz
Assistant Director, Science & Technology Division,
Institute for Defense Analyses

Colin Doyle
Research Staff Member, Institute for Defense Analyses

Martin Feldstein
Professor of Economics, Harvard University
President and CEO, National Bureau of Economic Research

J. D. Foster
Associate Director for Economic Policy, Office of Management and Budget

Alexander Michael Gelber
Ph.D. Candidate, Harvard University

Lawrence Goldberg
Research Staff Member, Institute for Defense Analyses

Heidi Golding
Principal Analyst, Congressional Budget Office

Vance Gordon
Program Review Coordinator, OSD(PA&E)

Stephen Heffler
Director, National Health Statistics Group, Centers for Medicare & Medicaid Services

Paul F. Hogan
Senior Vice President, The Lewin Group

Douglas Holtz-Eakin
Director, Maurice Greenberg Center for Geoeconomic Studies
Council on Foreign Relations

Stanley Horowitz
Assistant Director, Cost Analysis and Research Division
Institute for Defense Analyses

Michael John Houlihan
Program Examiner, Office of Management and Budget

Matthew Joseph Kastantin Jr.
Research Analyst, OSD(PA&E)

Samuel D. Kleinman
Vice President and Director, Resource Analysis Division
Center for Naval Analyses

Krystyna Maria Kolesar
Director, Force and Infrastructure Cost Analysis Division, OSD(PA&E)

Charles J. LaCivita
Executive Director, Defense Resources Management Institute

Daniel B. Levine
Research Staff Member, Institute for Defense Analyses

Robert A. Levy
Economist, Center for Naval Analyses

Michael S. Lofgren
Senior Budget Analyst for Defense and Homeland Security
Senate Committee on the Budget

Alexander John McClelland
Program Examiner, Office of Management and Budget

David L. McNicol
Director, Cost Analysis and Research Division
Institute for Defense Analyses

Douglas S. Meade
Senior Research Associate, Inforum

Louis A. Marano
Editor, Institute for Defense Analyses

David E. Moser
Assistant Director, Defense Capabilities and Management
U.S. Government Accountability Office

Carla T. Murray
Senior Analyst, Congressional Budget Office

Michael L. Mussa
Senior Fellow, Institute for International Economics

Solomon Mussey
Director, Medicare & Medicaid Cost Estimates Group
Centers for Medicare & Medicaid Services

Jerry Pannullo
Director, Economic and Manpower Analysis Division, OSD(PA&E)

Charles W. Perdue
Assistant Director, U.S. Government Accountability Office

Carol Dawn Petersen
Assistant Director, U.S. Government Accountability Office

Aline O. Quester
Senior Economist, Center for Naval Analyses

John L. Rafuse
Principal, The Rafuse Organization

Lieutenant Robert C. Rawleigh
Fellow, OSD(PA&E)

Christopher A. Rohlfs
Assistant Professor, Syracuse University

Lieutenant Colonel Daniel Shrimpton
Operations Research Analyst, OSD(PA&E)

Commander Paul Toland
Resources Programming Manager, Chief of Naval Operations (N931)

Derek Trunkey
Analyst, Congressional Budget Office

David Trybula
Executive Officer, Office of the Deputy Under Secretary of the Army (Business Transformation)

Karen W. Tyson
Research Staff Member, Institute for Defense Analyses

David M. Walker
Comptroller General of the United States and CEO
U.S. Government Accountability Office

Jeffrey F. Werling
Research Associate, Inforum/University of Maryland

John Euler Whitley
Operations Research Analyst, OSD(PA&E)

Gregory A. Wise Sr.
Director Army, Navy Programs MCR Federal LLC

Appendix M

Biographies of Speakers

Nariman Behravesh is Chief Economist and Executive Vice President for Global Insight where he is responsible for developing economic outlook and risk analyses for the United States, Europe, Japan, and emerging markets. He and his team of 200 professionals, who cover economic, financial, and political developments in over 180 countries, have been designated first in USA Today's 2004 ranking of top economic forecasters, and in Reuters's 2004 survey of major currency exchange rate forecasters. Dr. Behravesh also was the host of the PBS television series "Inside the Global Economy." Prior to joining Global Insight, he was chief international economist for Standard & Poor's and, before that, president and CEO of Oxford Economics U.S.A., Inc. Dr. Behravesh also spent 10 years at the WEFA Group, where he held a number of positions, including group senior vice president. Early in his career, he worked at the Congressional Budget Office and the Federal Reserve. He holds Ph.D. and M.A. degrees in economics from the University of Pennsylvania, and a B.Sc. from the Massachusetts Institute of Technology. Dr. Behravesh has authored numerous articles and co-authored two books on American economics and on corporate decision support planning. He is fluent in several languages, appears regularly on national television and radio broadcasts, and is cited frequently in leading business publications such as The Wall Street Journal and The New York Times.

Guy F. Caruso is the Administrator of the Energy Information Administration (EIA), a statistical agency within the United States Department of Energy that provides policy-independent data, forecasts, and analyses regarding energy. He has also served as the Executive Director of the Strategic Energy Initiative Project, under the Energy and National Security Program of the Center for Strategic and International Studies (CSIS), as well as the Director of the National Energy Strategy Project for the United States Energy Association. All told, Mr. Caruso has over 30 years of energy experience, including work at the Paris-based International Energy Agency and at the Central Intelligence Agency. He holds a Master of Public Administration degree from Harvard University, an M.S. in economics from the University of Connecticut, and a B.S. in business administration.

David S. C. Chu is the Under Secretary of Defense for Personnel and Readiness; in this capacity, he is the Secretary of Defense's senior policy advisor on recruitment, career development, pay, and benefits for active duty, Guard,

and Reserve military personnel as well as Department of Defense civilians and is responsible for overseeing the state of military readiness. He also oversees the Defense Health Program, Defense Commissaries and Exchanges, Defense Educational Activity, and Defense Equal Opportunity Management Institute. Dr. Chu earlier served as the Director and then Assistant Secretary of Defense (Program Analysis and Evaluation). In that capacity, he advised the Secretary of Defense on the future size and structure of the armed forces, their equipment, and their preparation for crisis or conflict. Dr. Chu has also served as the Assistant Director for National Security and International Affairs, Congressional Budget Office, as well as in several senior executive positions with RAND, including Director of the Arroyo Center and Director of RAND's Washington Office. He holds a bachelor's degree in economics and mathematics and a doctorate in economics from Yale University. He has served in the Army, where he became an instructor at the U.S. Army Logistics Management Center, completed a tour of duty in Vietnam, worked in the Office of the Comptroller, Headquarters, 1st Logistical Command, and obtained the rank of captain. He holds the Department of Defense Medal for Distinguished Public Service with Silver Palm.

Martin Feldstein is the George F. Baker Professor of Economics at Harvard University and President and CEO of the National Bureau of Economic Research, a private, nonprofit research organization that has specialized in producing nonpartisan studies of the American economy for more than 80 years. Dr. Feldstein is also a director of three corporations (American International Group; HCA; and Eli Lilly) and an economic adviser to several businesses in the United States and abroad. In 2004, he served as President of the American Economic Association. From 1982 through 1984, he was Chairman of the Council of Economic Advisers and President Reagan's chief economic adviser. Dr. Feldstein is a member of the American Philosophical Society, a Corresponding Fellow of the British Academy, a Fellow of the Econometric Society, and a Fellow of the National Association of Business Economists. He is also a member of the Trilateral Commission, the Council on Foreign Relations, the Group of 30, and the American Academy of Arts and Sciences. In 1977, Dr. Feldstein received the John Bates Clark Medal of the American Economic Association, a prize awarded every 2 years to the economist under the age of 40 who is judged to have made the greatest contribution to economic science. He is the author of more than 300 research articles in economics and a regular contributor to *The Wall Street Journal*. He holds bachelor's, masters, and doctorate degrees from Oxford University as well as a bachelor's degree from Harvard College.

J.D. Foster is the Associate Director for Economic Policy and Chief Economist at the Office of Management and Budget (OMB). In this capacity, Dr. Foster oversees OMB's Economic Policy staff and advises the Director on developments in the economy and potential changes in economic policy. He also is the chief advisor to the Director on matters of tax policy, represents OMB in the administration's "Troika" economic forecasting process, and has played a leading role in the development and advancement of the administration's pension and private health care policies. Prior to joining OMB in June 2002, Dr. Foster was Senior Advisor (Economics) at the Treasury Department's Office of Tax Policy, where he advised the Assistant Secretary on issues pertaining to the 2001 tax cut, the 2002 tax stimulus bill, and reform of the tax expenditure presentation in the 2002 President's Budget. In June 2000, Dr. Foster became the Legislative Director for Congressman Philip M. Crane (R-IL), Vice-Chairman of the House Committee on Ways and Means. Prior to that role, from 1993 to 2000, he was the Executive Director and Chief Economist at the Tax Foundation, a Washington, D.C.-based research and education institution. During this period, the Tax Foundation's research program was restored, a variety of new education programs were instituted, and its debt was retired. Earlier in his career, Dr. Foster also served as Chief of Staff to the Chairman of the President's Council of Economic Advisors, held several positions advising Senators on economic matters, and worked as a Staff Economist at the Institute for Research on the Economics of Taxation. He holds a Ph.D. in economics from Georgetown University, an M.A. in economics from Brown University, and B.A.s in economics and mathematics from the University of Colorado.

Stephen Heffler is Director of the National Health Statistics Group with the Office of the Actuary at the Centers for Medicare & Medicaid Services (CMS). His group is responsible for historical national health spending estimates, for health spending estimates by state and age, and for short- and long-run projections of national health spending. It is also responsible for the development and maintenance of the price indexes used to update Medicare payments to hospitals, physicians, skilled nursing facilities, and home health agencies, and for analysis of the financial condition of health care providers. He holds a B.A. in economics from the University of Maryland-Baltimore County and an M.B.A. from the University of Baltimore.

Douglas Holtz-Eakin is the Director of the Maurice R. Greenberg Center for Geoeconomic Studies and the Paul A. Volcker Chair in International Economics at the Council on Foreign Relations. Prior to his current role, he

was the sixth Director of the Congressional Budget Office, where he served a 4-year term, and previously served for 18 months as Chief Economist for the President's Council of Economic Advisers, where he also served as a Senior Staff Economist in 1989 and 1990. Dr. Holtz-Eakin has been a Trustee Professor of Economics at the Maxwell School at Syracuse University, where he served as Chairman of the Department of Economics and Associate Director of the Center for Policy Research. He also has served as editor of the *National Tax Journal*, associate editor of the *Journal of Human Resources*, and as a member of the editorial board for *Public Budgeting & Finance*, *Economics and Politics*, *Journal of Sports Economics*, *Regional Science and Urban Economics*, and *Public Works Management and Policy*. He has held academic appointments at Columbia and Princeton Universities. He has studied the role of Federal taxes in home ownership, the contribution of inventories to the business cycle, and a wide variety of topics in state and local government finance. Recently, his research has centered on the economics of fundamental tax reform, productivity effects of public infrastructure; income mobility in the United States; and the role of families, capital markets, health insurance, and tax policy in the start-up and survival of entrepreneurial ventures.

Michael S. Lofgren has been a professional staff member since January 2005 on the Senate Budget Committee, where he handles defense and homeland security issues for the majority. From 1995 through 2004, he was budget analyst for national defense for the majority staff of the House Budget Committee. In 1994 he was a professional staff member of the House Armed Services Committee's Readiness Subcommittee. He began his legislative branch career as military legislative assistant to Congressman John R. Kasich in 1983. He has a B.A. and M.A. in history from the University of Akron. He was awarded a Fulbright Scholarship to study European history at the University of Basel, Switzerland, and has completed the strategy and policy curriculum at the Naval War College.

Michael Mussa has been a senior fellow at the Institute for International Economics since 2001. He served as Economic Counselor and Director of the Department of Research at the International Monetary Fund from 1991—2001, where he was responsible for advising the Management of the Fund and the Fund's Executive Board on broad issues of economic policy and for providing analysis of ongoing developments in the world economy. By appointment of President Ronald Reagan, Dr. Mussa served as a Member of the U.S. Council of Economic Advisers from August 1986 to September

1988. He was a faculty member of the University of Chicago's Graduate School of Business from 1976 to 1991 and of the University of Rochester's Department of Economics from 1971 to 1976. During this period he also served as a visiting faculty member at the City University of New York's Graduate Center, the London School of Economics, and the Graduate Institute of International Studies in Geneva, Switzerland. Dr. Mussa's main areas of research are international economics, macroeconomics, monetary economics, and municipal finance in which he has published widely in professional journals and research volumes.

Solomon Mussey is the Director of the Medicare & Medicaid Cost Estimates Group in the Office of the Actuary at the Centers for Medicare & Medicaid Services (CMS). His group is responsible for short-range and long-range cost estimates related to the Medicare and Medicaid programs, including estimates for the annual Trustees Reports, the President's budget, and miscellaneous cost estimates related to proposed legislation and health care reform. His group is also responsible for the preparation of estimates for the Supplementary Medical Insurance premium rate, the Hospital Insurance (HI) premium rate for the uninsured, the HI inpatient hospital deductible, the skilled nursing facility coinsurance rate, and the Medicare Advantage payment ratebook for announcement by the CMS Administrator. He has 32 years of actuarial service with the Federal government, including 3 years with the Social Security Administration and 29 years with CMS. He has a B.A. in mathematics and a M.A. in statistics, both from the University of California at Berkeley.

John L. Rafuse is an independent consultant on energy, trade, sanctions, security, and related matters. He previously worked for more than 25 years with Union Oil Company of California (Unocal), an international oil and gas company. His Unocal responsibilities included corporate planning, regulatory economics, issues analysis and government affairs, as well as various domestic and international troubleshooting assignments for the Office of the Chief Executive Officer. Prior to joining Unocal, Dr. Rafuse worked at the Center for Naval Analyses and in various Government agencies, including the Department of the Navy, the White House, the Office of Management and Budget, and the Federal Energy Administration. His Ph.D. dissertation at the University of Notre Dame examined Britain's 1882 invasion of Egypt, and succeeding governments' attempts to deal with imperial rivalries, Arab nationalism, and Islamist extremism for decades to come.

David M. Walker was appointed as the seventh Comptroller General of the United States in 1998 and has served in this capacity since. In this role, he serves as head of the U.S. Government Accountability Office (GAO), a legislative branch agency whose mission is to improve the performance and assure the accountability of the Federal Government for the benefit of the American people. Mr. Walker has more than 20 years of private sector experience and more than 13 years of public service experience, including as a Partner and Global Managing Director of the Human Capital Services Practice for Arthur Andersen LLP and in various roles with Price Waterhouse, Coopers & Lybrand, and Source Services Corporation. Mr. Walker received Presidential appointments from former Presidents Ronald Reagan, George Herbert Walker Bush, and Bill Clinton. In these appointments, he served as a Public Trustee for Social Security and Medicare and as Assistant Secretary of Labor for Pension, Health and other Employee Benefit Programs. Mr. Walker is also a Certified Public Accountant. He holds a Bachelor's degree from Jacksonville University and an SMG Certificate in Public Administration from the JFK School of Government at Harvard University.