

The Impact of the Macroeconomic Environment on the Global Defense Industrial Base

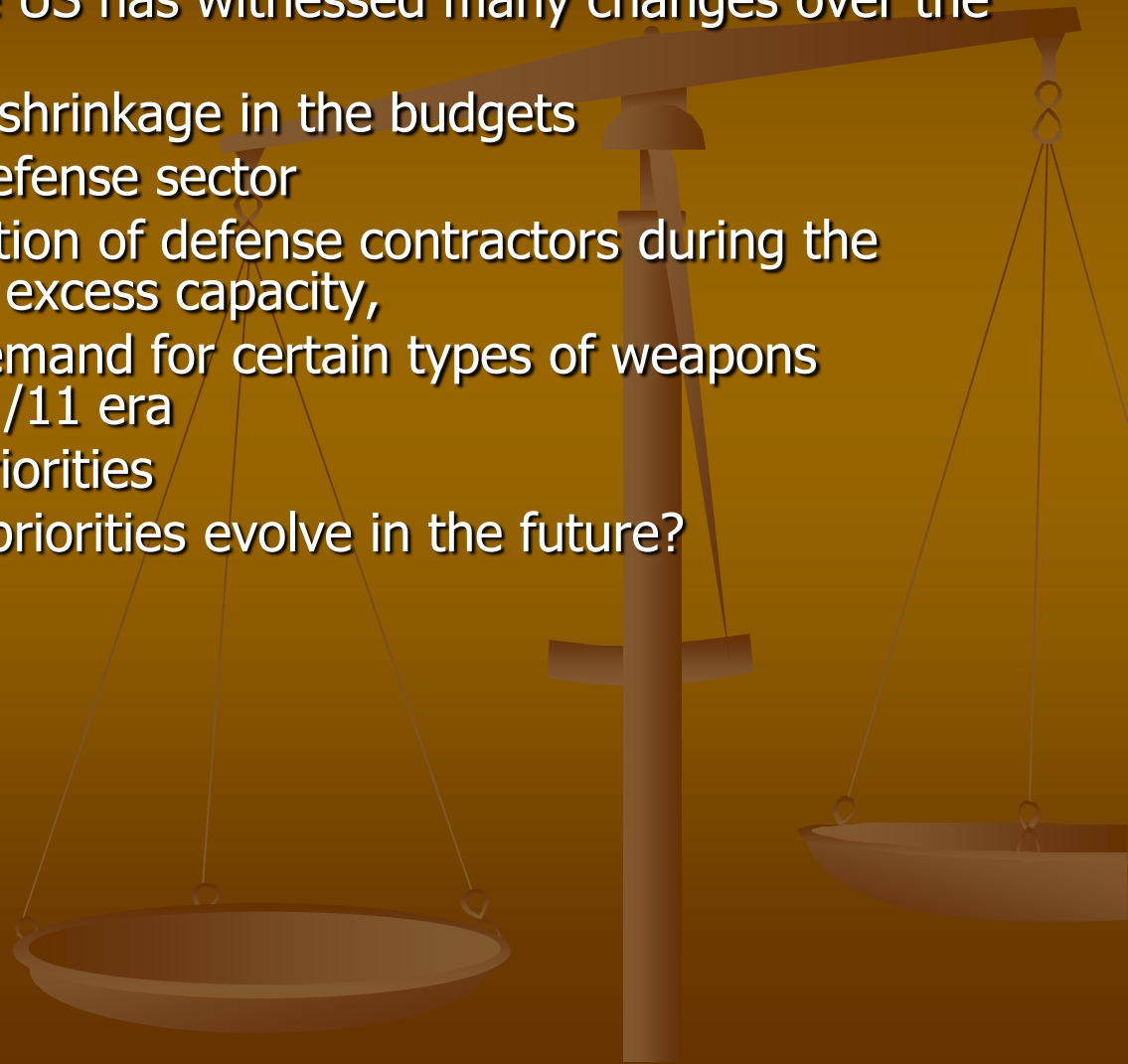


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Evolution of the Defense Sector

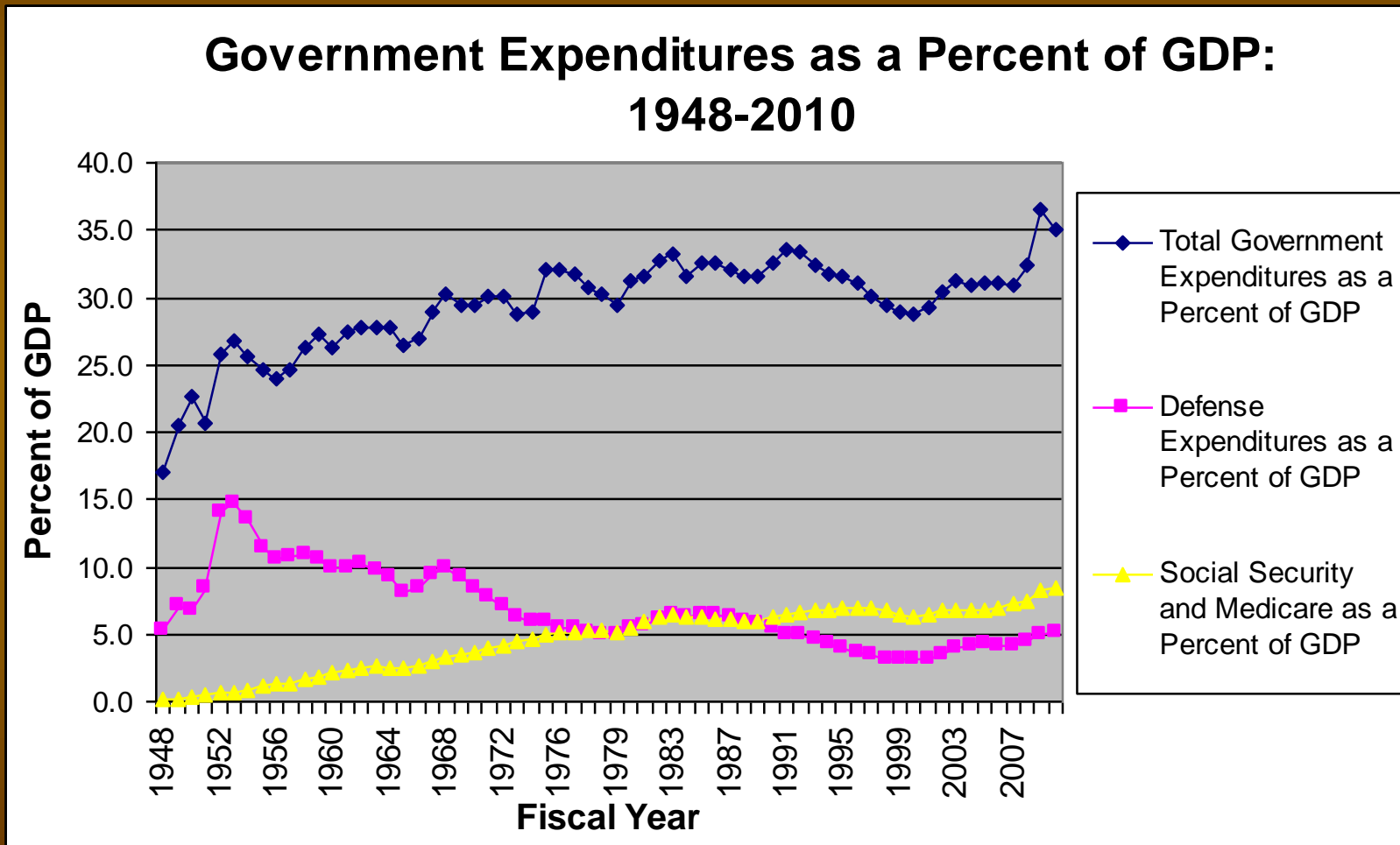
- The defense sector in the US has witnessed many changes over the past twenty years.
 - Cycles of growth and shrinkage in the budgets
 - Globalization of the defense sector
 - Substantive consolidation of defense contractors during the 1990's in the wake of excess capacity,
 - An evolution in the demand for certain types of weapons systems in the post 9 /11 era
 - Shift in defense priorities
 - How will defense priorities evolve in the future?



Fiscal Concerns in the US Macroeconomic Environment

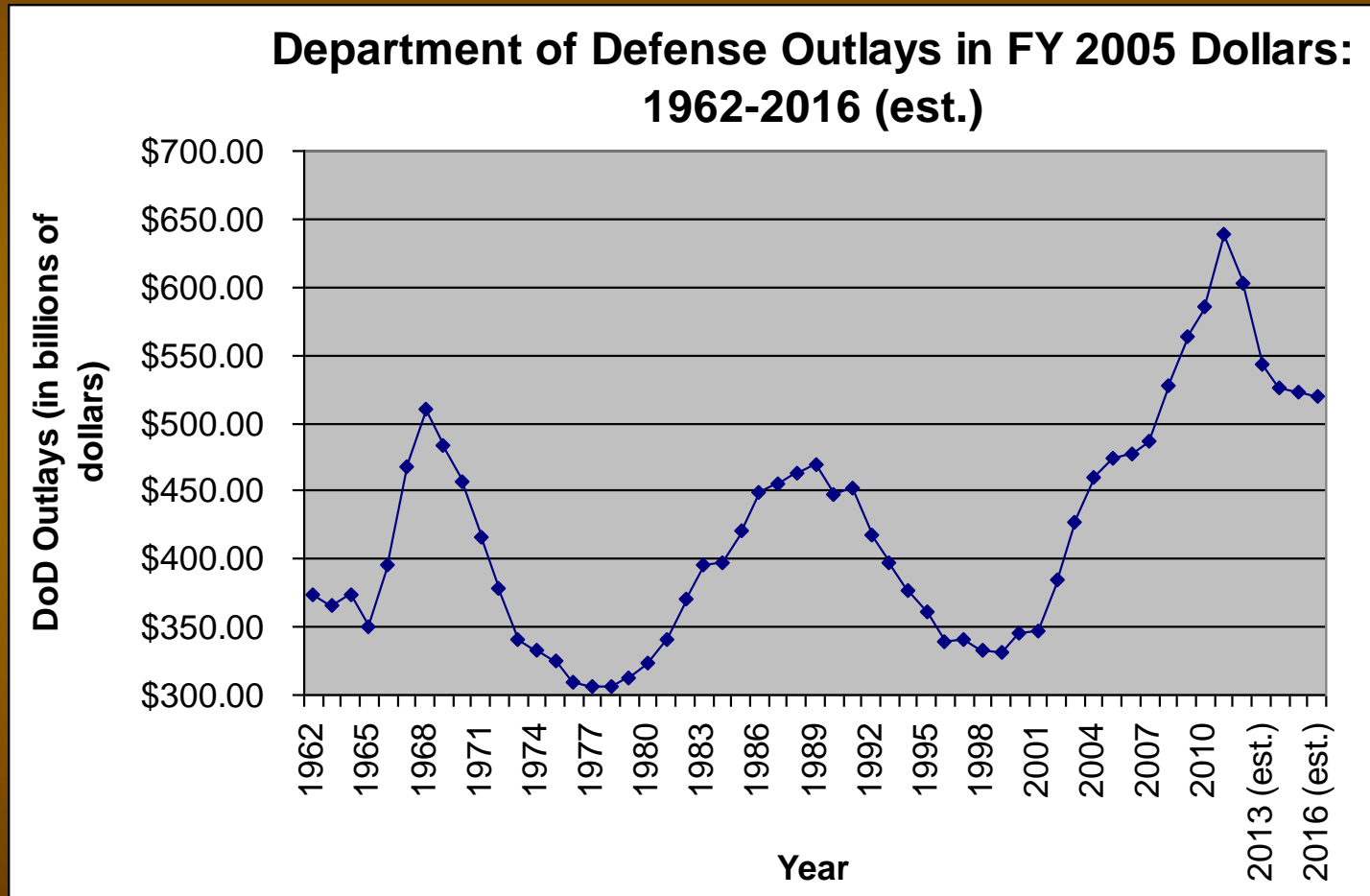
- How will debt / deficit reduction plans impact US defense spending?
 - The deficit reduction plan has called for cutting as much as \$450 billion from the Pentagon's projected budget over the next 10 years.
 - If lawmakers fail to agree on further savings, an additional \$1.2 trillion in automatic cuts to discretionary federal spending will ensue, of which \$600 billion may be from DoD.
 - What will be the impact on the defense industrial base, weapons capabilities, size of DoD military and civilian workforce, etc?
 - New types of weapons systems vs. modernization / replacement of existing systems

US Government Expenditures as a Percent of GDP: 1948-2010



Source of underlying data: Office of Management and Budget

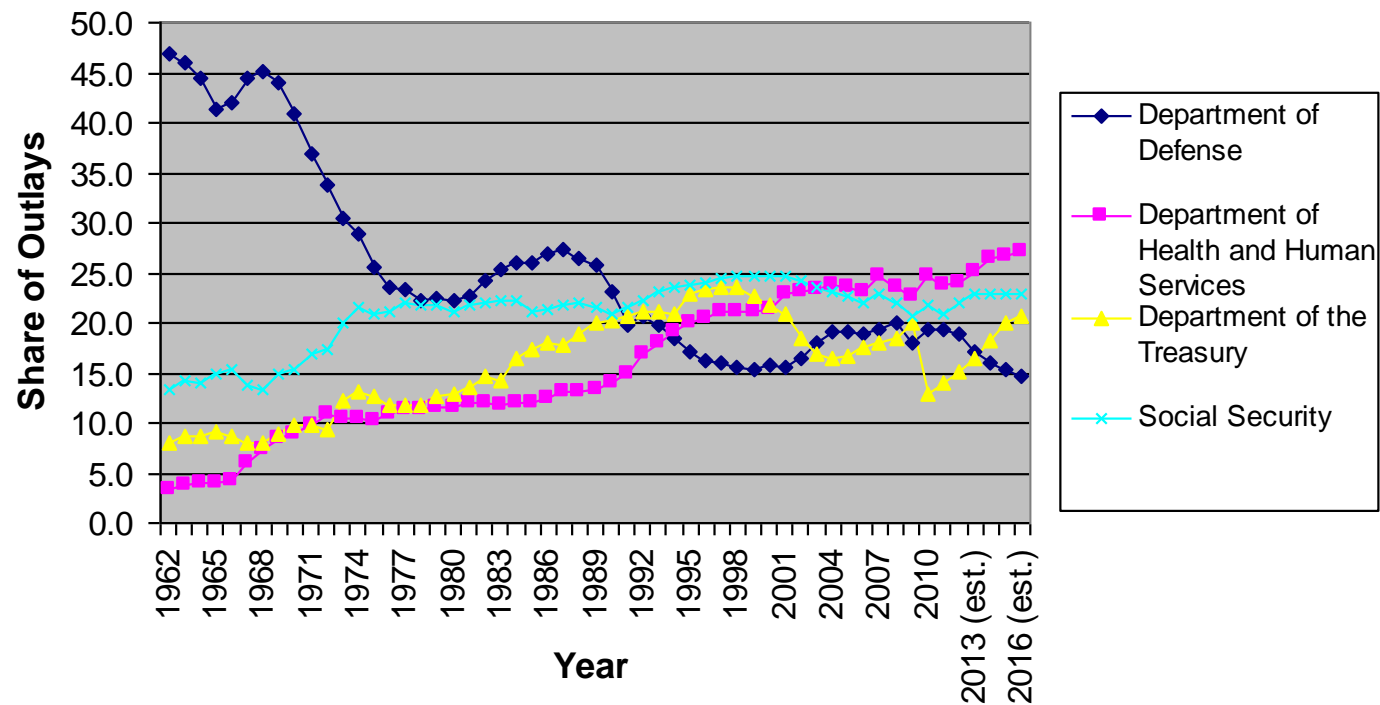
US Department of Defense Outlays: 1962-2016 (est.)



Source of underlying raw data: Office of Management and Budget (OMB)

Relative Comparison of US Department of Defense Outlays with Other Agencies

Share of US Government Outlays for Agencies with the Largest Outlays: 1962-2016 (est.)



Source of underlying raw data: Office of Management and Budget (OMB)

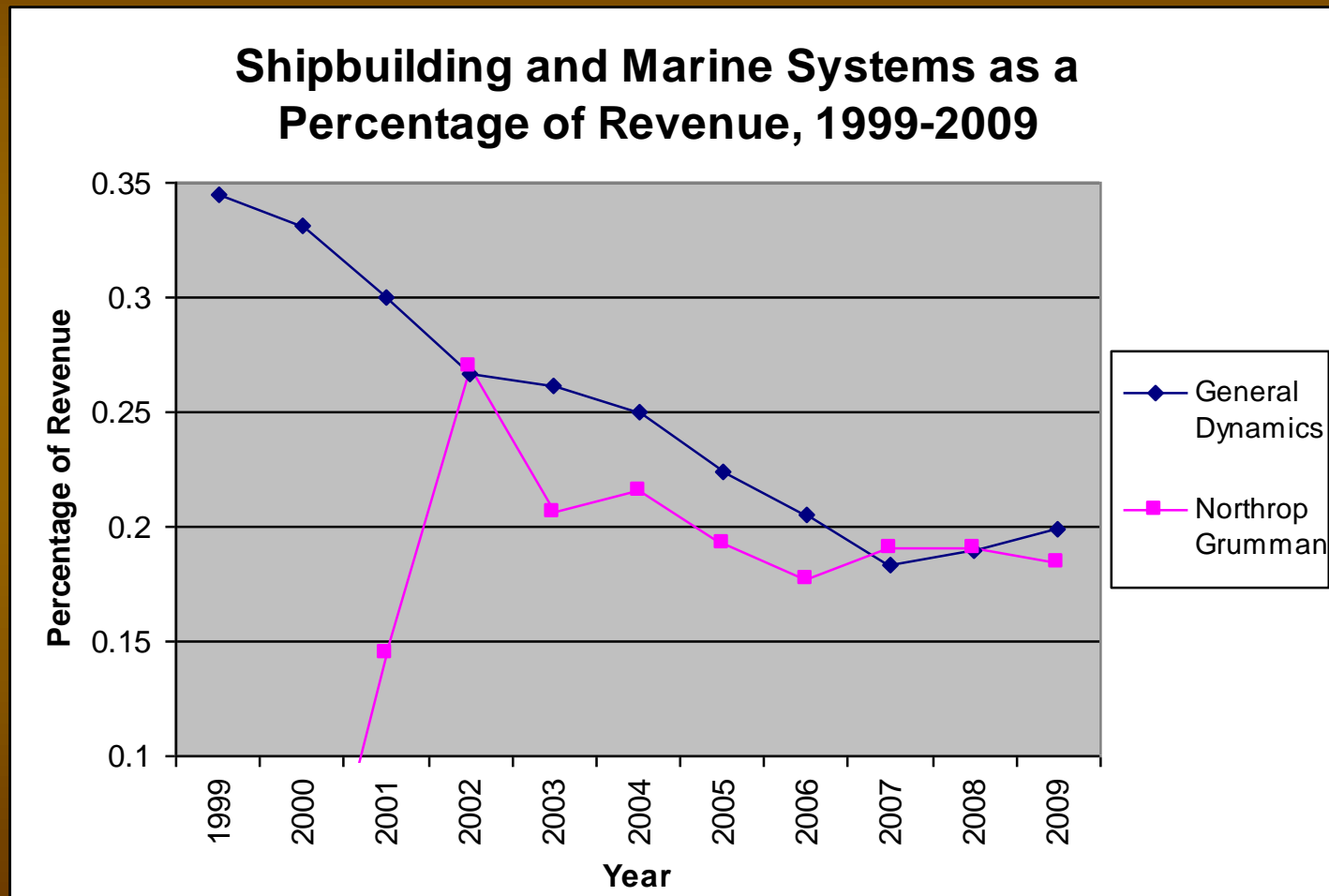
Areas of Growth and Shrinkage in the US Defense Industrial Base

- If there is reduced demand for next generation of Pentagon programs, this could lead to atrophy over time in a specialized skills base which can hinder the strength of the sector in developing future systems.
 - Aging demographics and difficulties in intergenerational skillset transfer with a reduced equipment order book.
- Have already seen areas of growth and shrinkage in the defense industrial base with the evolution in US defense priorities over the last several decades.
- Defense contractors are shifting their focus toward areas of growth, including cybersecurity, electronic systems, and unmanned aircraft.
- The wars in Iraq and Afghanistan have shown the potential for the market for UAV's
 - Opportunities for smaller, innovative, younger firms, as well as for more established defense contractors, which are expanding into the product space partially through acquisitions.

Areas of Growth and Shrinkage in the US Defense Industrial Base

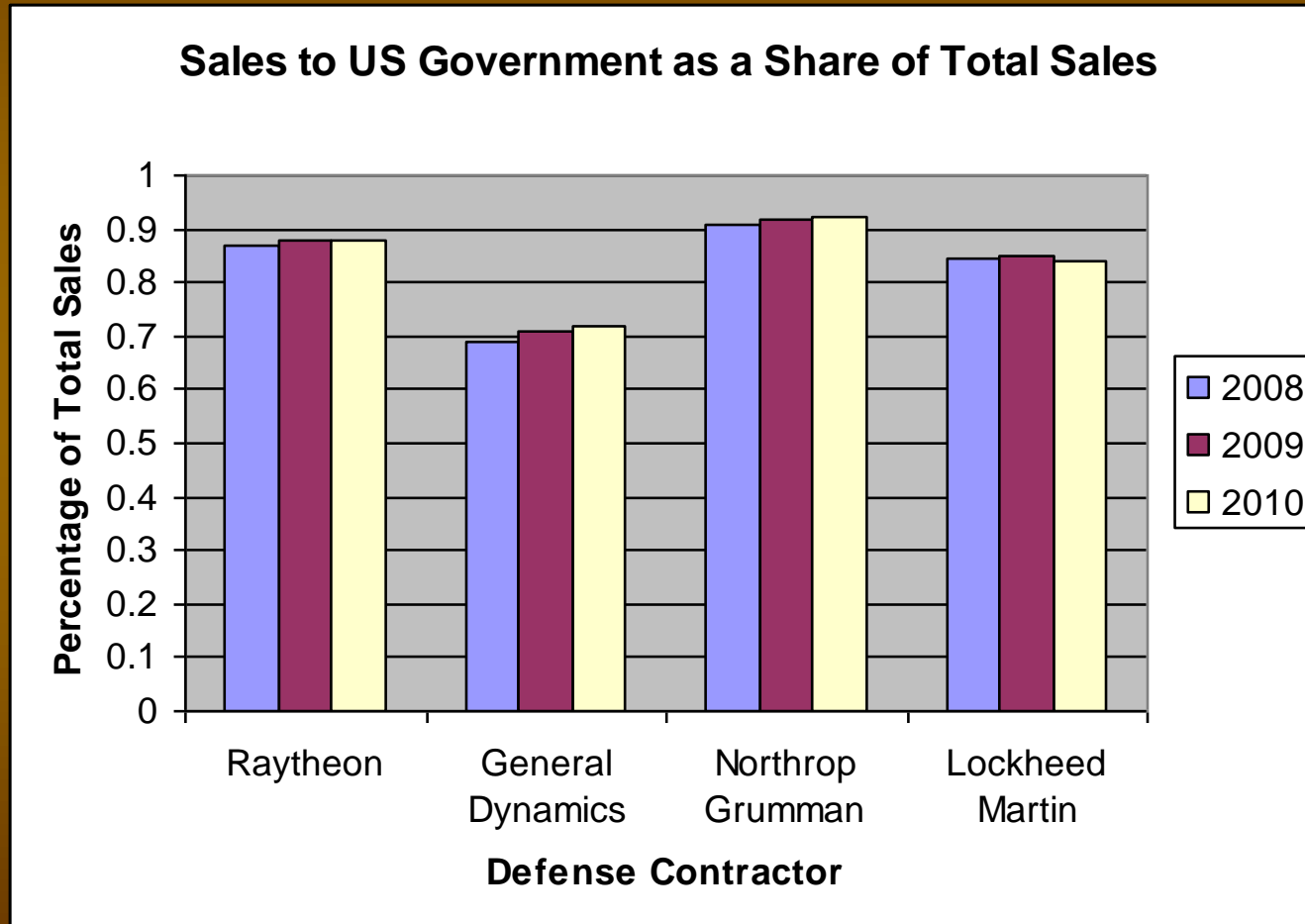
- Greater investment in the “cyber-industrial complex.”
 - Thriving due to Russia’s alleged attack on Estonian government websites in 2007 and the Stuxnet attack in 2010 on Iran’s nuclear reactor program
 - US defense, intelligence, and homeland security spend \$10 billion annually on cybersecurity; expected to grow 9% annually
 - Including private companies expenditures as well as DoD, market is worth \$100 billion
 - Smaller firms are being acquired by larger firms (knowledge transfer) with double the number of buyouts in 2011 relative to 2010
 - Provides greater diversification for defense contractors
- Stable to declining growth in shipbuilding.
 - Northrop Grumman spun off its shipbuilding unit as Huntington-Ingalls Shipbuilding this spring due to lack of synergies with its other units, and plans to focus more on its information systems, unmanned aircraft, and electronics businesses.

Some Areas of the Defense Industrial Base Have Experienced Less Rapid Growth



Source of underlying raw data: Capital IQ

Importance of US Government in Industrial Base of Top Defense Contractors



Source of underlying data: 2010 annual reports for General Dynamics, Raytheon, Northrop Grumman, and Lockheed Martin

Impact of Fiscal Austerity in Europe on Defense Spending

- Under the minimum defense investment obligations of the NATO alliance, NATO members must invest at least 2% of GDP in defense.
 - Only three EU-NATO members—Britain, Greece, and France—meet the standard
 - France is reducing defense expenditures by 3.6 billion euros through 2013
 - The UK, which is the largest European force in Afghanistan, announced cuts of up to 8% under their new Strategic Defense and Security Review
 - The UK has been reviewing purchases of Eurofighter Typhoon combat jets and additional A400M transport planes, while Italy and France plan to purchase fewer Fremm Multipurpose Frigates.
 - Germany plans to cut 9.3 billion euros from the defense budget by 2014.
 - May result in reduced purchases of the NH90 transport helicopter, the Tiger combat helicopter and additional Eurofighters, as well as a reduction in the number of A400 transport planes, Transall transport planes, and Tornado fighter planes.

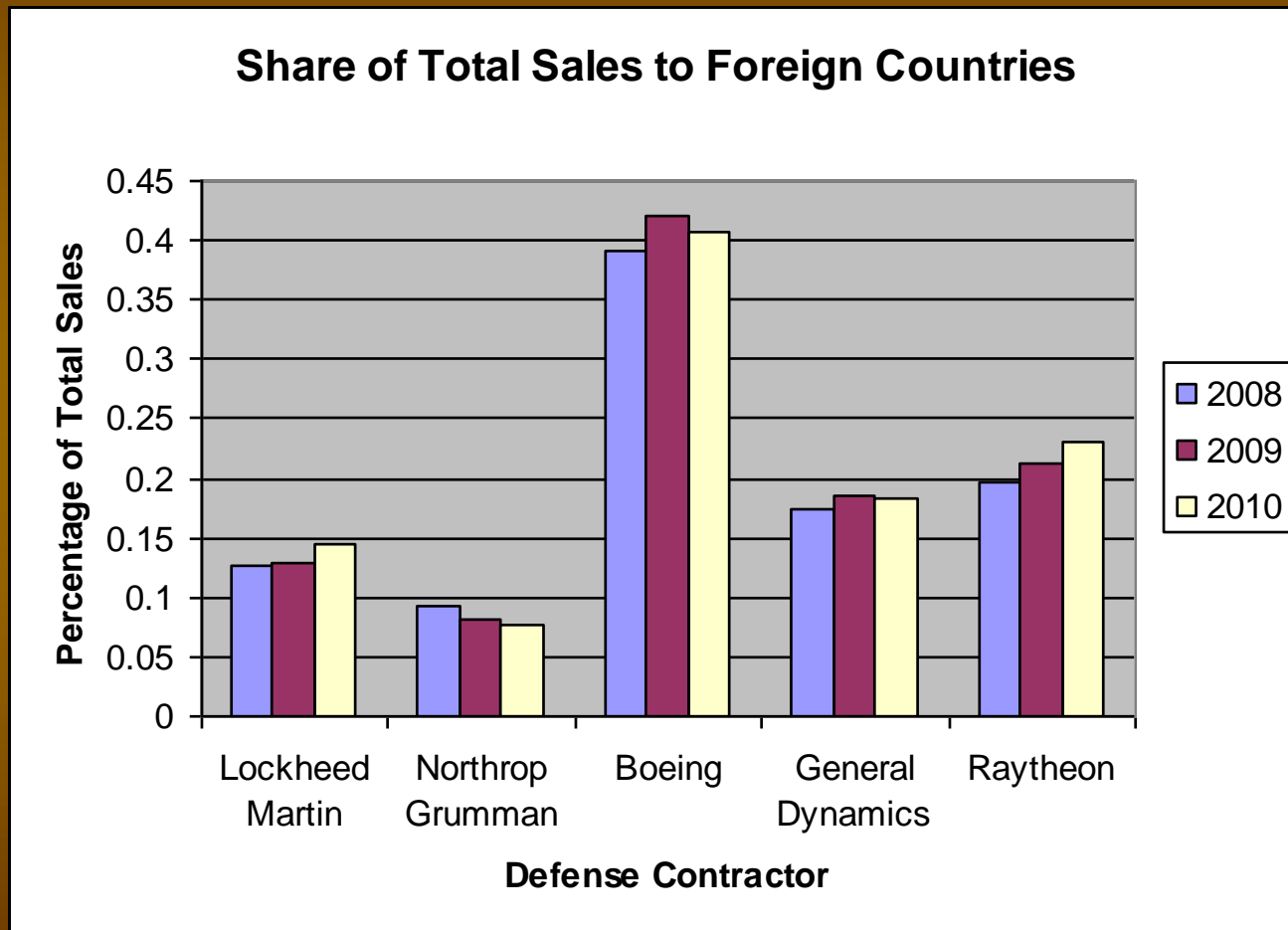
Impact of Fiscal Austerity in Europe on Defense Spending

- Concerns about NATO's levels of defense resourcing in the Libyan operations—will the defense resourcing of NATO members improve in the near future?
 - Lacked enough intelligence, surveillance and reconnaissance platforms like Predator and Global Hawk drones and aerial refueling tankers
 - Had not trained adequate numbers of targeting specialists
 - Experienced shortages in munitions, fuel, and repair parts
- If the euro weakens, this, combined with fiscal austerity, can reduce Europe's role in commercial and military trade in aircraft / spacecraft and ships, which may have long-run implications for defense industrial base skill development.
 - Germany and Greece import 20.8% of global imports of commercial / military ships and boats
 - France and Germany import 27.6% of global imports of commercial / military aircraft / spacecraft and export 52.6% of global exports of commercial / military aircraft and spacecraft.

Orientation of Defense Sectors Toward Growing Markets

- The shrinkage in the European defense industrial base and in areas of the US defense industrial base, are leading to a greater outward focus for US and European defense contractors.
 - Stefan Zoller, head of defense and security at EADS, noted that “European markets will decline or be stable at best...Strategically, we have to go where the money is and the money is around the globe.” The company will have to “generate growth to maintain our industrial base at home.”
- Recent growth in defense markets in the Middle East, India, and Brazil.
 - Will emerging defense markets continue to grow as rapidly as forecast, as many of these countries combat inflation and experience the impact of shrinkage in their markets for exports to developed countries?

Greater International Focus of US Defense Contractors



Source of underlying data: 2010 annual reports for General Dynamics, Raytheon, Northrop Grumman, Lockheed Martin, and Boeing

Impact of Broader Budgetary Issues on Foreign Military Sales?

- Worldwide arms sales in 2010 (\$40.4 billion) are at their lowest levels since 2003 and dropped 38% from the prior year
- US led global arms sales, signing 52.7% of worldwide arms sales (\$21.3 billion in 2010 vs. \$22.6 billion in 2009)
- Russia was second in global arms sales, signing 19.3% of them (\$7.8 billion in 2010 vs. \$12.8 billion in 2009).
- Although developing countries were involved in 76.2% of worldwide arms deals, this represented a decline from the prior year (\$30.7 billion in 2010 vs \$49.8 billion in 2009).
 - The US was the main source of weapons to the developing world, with sales accounting for 48.6% of the developing country deals. Russia was the second largest source.
 - India was the top developing country purchaser in 2010 (\$5.8 billion), followed by Taiwan (\$2.7 billion), and Saudi Arabia (\$2.2 billion).
 - Other purchasers were Egypt, Israel, Algeria, Syria, South Korea, Singapore, and Jordan.

Concluding Thoughts

- Fiscal austerity measures, combined with the shift in defense priorities over the past decade, may significantly reshape the US defense industrial base.
- Some areas of the US defense industrial base have experienced growth over the last ten years (UAV's, cybersecurity), and some areas have experienced more stable development (shipbuilding)
- The European financial crisis is likely to weaken the European defense industrial base due to the impact of fiscal austerity measures on defense purchases.
- The US and European defense contractors may continue to expand their focus on overseas markets, although these markets may experience less growth than previously forecast.
- The potential tightening of DoD budgets will require greater efficiency in procurement / R&D, and potential reductions in the military / civilian workforce, as well as changes in entitlements.
- Due to inelastic demand for defense, the sector will continue to be a significant contributor to the US and global economies.
- The evolving fiscal environment and the types of military threats will hopefully contribute to the development of a more cost-effective and transparent landscape