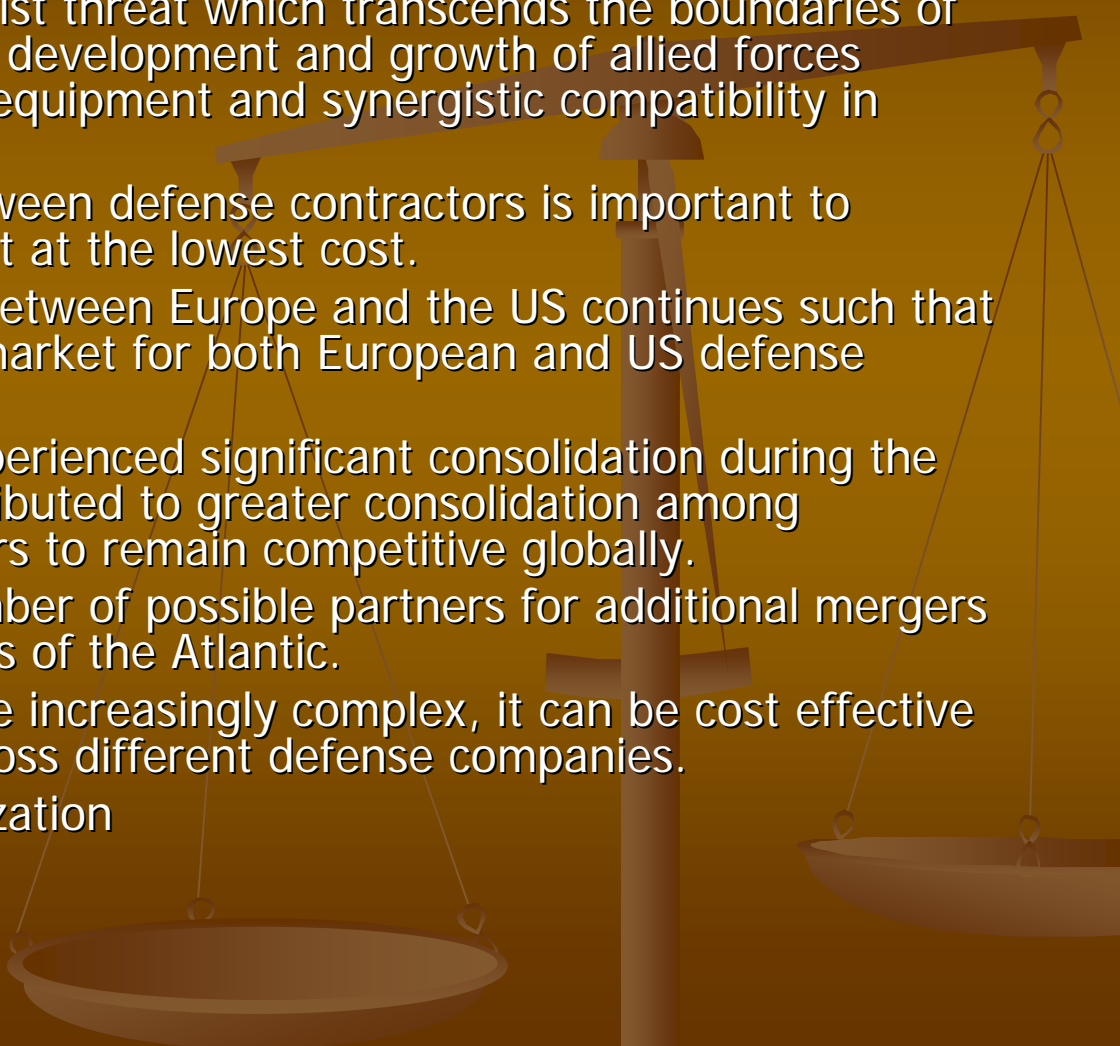




# The Role of Transatlantic Defense Alliances in a Globalizing World

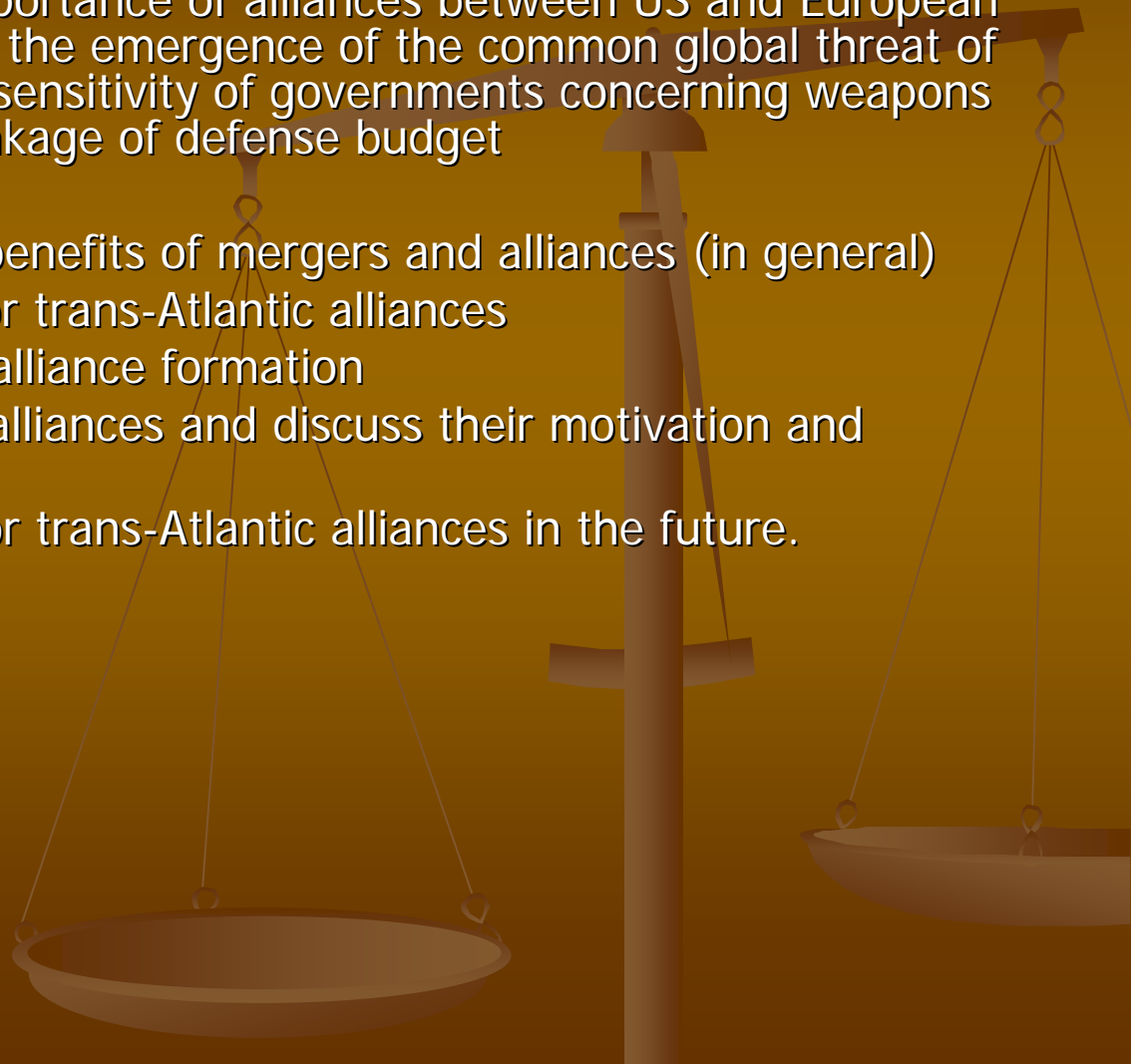
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# Evolution of the Landscape of the Global Defense Industry

- The emergence of the terrorist threat which transcends the boundaries of nation-states, has led to the development and growth of allied forces requiring interoperability of equipment and synergistic compatibility in computer systems.
    - Cooperation in R&D between defense contractors is important to produce the best product at the lowest cost.
  - The defense spending gap between Europe and the US continues such that the US remains a lucrative market for both European and US defense contractors.
  - The US defense industry experienced significant consolidation during the 1990's, which, in turn, contributed to greater consolidation among European defense contractors to remain competitive globally.
    - This has limited the number of possible partners for additional mergers or alliances on both sides of the Atlantic.
  - As weapons systems become increasingly complex, it can be cost effective to spread the R&D costs across different defense companies.
  - Overall trend toward globalization
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# Purpose and Outline

- Purpose: to examine the importance of alliances between US and European defense manufacturers with the emergence of the common global threat of terrorism, the greater price sensitivity of governments concerning weapons systems costs, and the shrinkage of defense budget
- Outline
  - Examine the costs and benefits of mergers and alliances (in general)
  - Assess the motivation for trans-Atlantic alliances
  - Analyze the patterns in alliance formation
  - Provide case studies of alliances and discuss their motivation and outcome
  - Examine the potential for trans-Atlantic alliances in the future.



# Benefits and Costs of Mergers



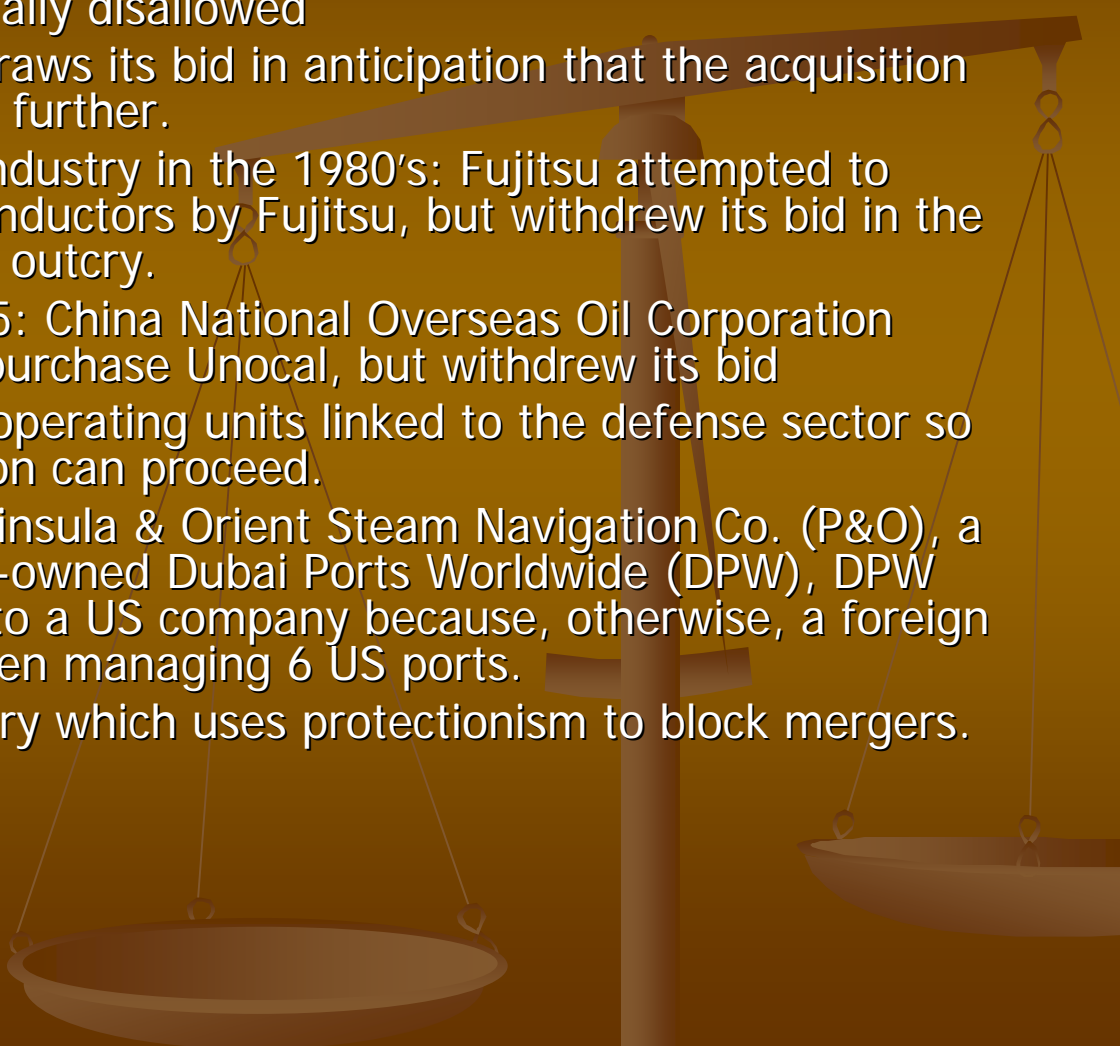
- Benefits of mergers in general, across industries
  - Lead to the formation of more permanent relationships
  - Provide opportunities for cost cutting in eliminating duplicative workforces and in reorganizing the corporate hierarchy to better internalize and reduce the transactions costs which would have been present in an arms-length relationship.
- Costs of mergers
  - Substantive integration costs and cultural / communication difficulties,
  - Can have permanent or long-lasting effects on the market power of various companies, the ability of new firms to enter the industry, and market concentration levels.
- When mergers occur between companies from different countries, the magnitude of the opportunities for benefits relative to the costs changes.
  - Absorption costs for an international merger can be higher
  - The issue of which country loses jobs to the other country is often magnified by the popular press and government officials.
  - Impact on market power and market concentration can be less since the relevant market is geographically larger
  - Regulatory review process can become more complicated since regulatory authorities from multiple countries are involved.

# Alliances Relative to Mergers



- Alliances can often be a good alternative to mergers.
- Benefits of alliances
  - The parties involved in an alliance can obtain some of the benefits of a merger—joint investments in R&D expenses and production equipment, knowledge transfer and technology transfer, and access to new markets.
  - Alliances can be easier to disassemble than mergers because less integration of operations is required.
- Costs of alliances
  - Alliances may lack the depth of integration found in mergers,
  - Less of an incentive for parties to invest in relationship-specific assets and to produce the types of benefits which would be possible in a merger.
  - Although alliances may raise fewer regulatory concerns, the degree of technology transfer, etc. is still subject to review.
  - Government officials can also protest ensuing job loss if combined production facilities from the alliance result in a loss of jobs in one country.

# Outcomes of Acquisition Attempts in the US Defense Industry Involving Foreign Firms

- The acquisition is often formally disallowed
  - Or the foreign entrant withdraws its bid in anticipation that the acquisition will be blocked if it proceeds further.
    - The US semiconductor industry in the 1980's: Fujitsu attempted to acquire Fairchild Semiconductors by Fujitsu, but withdrew its bid in the wake of a Congressional outcry.
    - The US oil sector in 2005: China National Overseas Oil Corporation (CNOOC) attempted to purchase Unocal, but withdrew its bid
  - Separation or divestiture of operating units linked to the defense sector so that the rest of the acquisition can proceed.
    - In the acquisition of Peninsula & Orient Steam Navigation Co. (P&O), a British firm, by the state-owned Dubai Ports Worldwide (DPW), DPW agreed to sell the ports to a US company because, otherwise, a foreign company would have been managing 6 US ports.
  - The US is not the only country which uses protectionism to block mergers.
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# Motivations for Trans-Atlantic Ties



- Need for more synergistic and interoperable equipment among NATO members.
- European defense firms were partially attracted to the US market because its defense market was much larger than the defense market in Europe
- If US R&D did drive the next generation of weapons systems, an alliance would give European countries access to the technologies without having to fund their development themselves
- Concerns over limitations on technology transfer on national security grounds between countries was one of the greatest stumbling blocks
  - Barriers on export licensing and the transfer of technology limited the development of transatlantic alliances in the late 1990's and early 2000's
  - The "Declaration of Principles" signed by the US and the UK in February, 2000 was an early step to greater joint research and development, and coordination of technology transfer, military requirements, etc.

# Patterns in Alliances between US and Foreign Defense Contractors

- The author collected data on the number, type, and details of joint ventures and alliances between 2002 and 2005 involving US and foreign defense contractors.
- Lockheed Martin and Boeing had the greatest number of alliances with foreign defense contractors.
- Northrop Grumman, General Dynamics, and Raytheon had between 1/4 and 1/3 of the number of alliances with foreign contractors as Lockheed Martin and between 1/2 and 1/3 of the number of alliances with foreign contractors as Boeing.
- The fact that Boeing and Lockheed Martin had more alliances with foreign defense contractors may be due to:
  - the opportunities for shared R&D in the weapons systems sub-sectors in which these alliances focused
  - the success of previous alliances made by these companies



# Patterns in Alliances between US and Foreign Defense Contractors

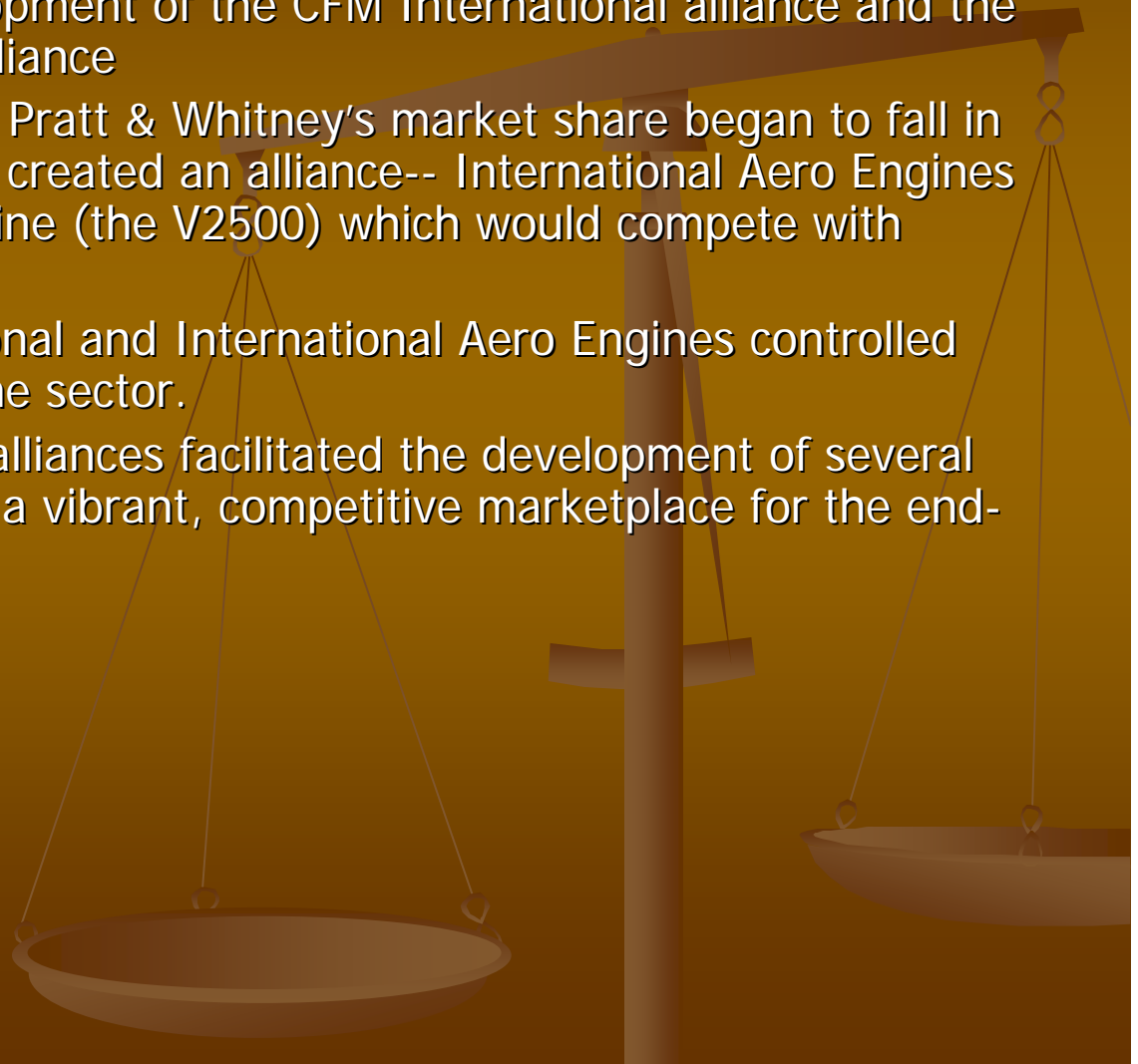
- Divided the foreign defense contractors involved in alliances with a US defense contractor by region—Europe, the UK / Australia / Canada, Asia, and the Middle East.
  - Lockheed Martin contracted half of its alliances and joint ventures involving foreign contractors with UK, Australian and Canadian contractors and the other half with Asian contractors.
  - Northrop Grumman contracted 2/3 of its foreign alliances with UK, Australian, and Canadian contractors, and 1/3 with Middle Eastern contractors.
  - General Dynamics contracted 1/2 of its foreign alliances with European contractors and half with UK, Australian, or Canadian contractors.
  - Raytheon had 100% of its foreign alliances with European contractors.
  - Boeing had 1/3 of its foreign alliances with European contractors and 2/3 with Asian contractors.
- The dominance of UK, Australian, Canadian, or European firms as foreign partners in these alliances suggests the importance of:
  - common language
  - a prior history of successful alliances with firms in that country, leading to a positive, self-reinforcing cycle
  - the importance of these partner countries as allies in the Global War on Terror and the need for interoperability of equipment, especially in joint operations.

# The Role of Alliances in Creating Additional Alliances Among Competitors

- Alliances are often formed in order to combine different knowledge pools to create a new and superior product.
- As the market share for this product increases, the competitors in this product space may also form alliances. The result of this defensive alliance formation can be an improved market sector with better products.
- Example: The development of the CFM International alliance and the International Aero Engine alliance
  - CFM International was formed in 1974 between GE and Snecma (France) to leverage their skills from the defense engine market and to expand in the civilian engine market
  - As of 2007, the engines made by CFM (especially the CFM 56 engine) could be found in over 50% of the fleet of single aisle planes with 100 seats or more and are often found in Airbus 320's and Boeing 737's.

# The Role of Alliances in Creating Additional Alliances Among Competitors

- Example (cont.): The development of the CFM International alliance and the International Aero Engine alliance
  - During the early 1980's, Pratt & Whitney's market share began to fall in this product space, so it created an alliance-- International Aero Engines (IAE) to develop an engine (the V2500) which would compete with CFM's engines.
  - By 1995, CFM International and International Aero Engines controlled 26.6% of the aero engine sector.
  - The formation of these alliances facilitated the development of several new engines, as well as a vibrant, competitive marketplace for the end-user



# Trans-Atlantic Partnerships as a Means of Promoting National Defense Strategy

- In 2002, Boeing entered into separate agreements with BAE, EADS, and Alenia Spazio to cooperate on ballistic missile defense.
  - An informational exchange in which Boeing would discuss with its European partners its approach to missile defense, and they would discuss the technologies that they could incorporate in the missiles
  - Partially created to galvanize the interest of European governments in larger ballistic missile defense programs, which they thought could be destabilizing, rather than just theater-wide missile defense.
  - Could assist in convincing the Europeans that larger missile defense programs could also cover NATO's European members and to show the Europeans that there would be jobs involved in it
  - The various European partners in the alliance were chosen due to the contributions that their expertise would provide to the project

# Alliances Focused on Specific Product Areas

- Many of the successful trans-Atlantic alliances between defense contractors have been focused on a specific product area.
  - Example: CFM International and International Aero Engines
  - Example: Thales (formerly Thomson-CSF, a French company) and Raytheon.
    - Completed in early 2001 so that the two contractors could collaborate on ground-based battlefield radar programs and air defense command / control (C2) programs
    - By the end of 2001, Thales and Raytheon had collaborated on 17 projects
    - As was the case in the alliance formed between Boeing and EADS in the missile defense area, Thales and Raytheon had successfully collaborated previously on other fronts.

# The Role of Alliances in Sharing R&D Costs

- Mergers and alliances are often valuable in enabling the participating firms to generate economies of scale in both R&D costs and in production costs by sharing these costs or by spreading them over a greater number of units of output to lower per unit costs. R&D has continued to be important as weapons systems have become more complex.
- Example: an alliance, led by Boeing, and including the Airbus companies of Aerospatiale SA (France), British Aerospace, and Daimler-Benz, to develop a "super-jumbo" jet.
  - The R&D costs of \$15 billion to develop this jet were too much for one contractor to sustain, and were more affordable when spread over an alliance of contractors.
  - First began development in January, 1992, but collapsed in 1995 due to uncertainty in demand.
    - Underscores the importance of the need to share R&D costs, and hence the risk of product development, in an environment of uncertain demand.

# The Role of Alliances in Developing Interoperable Equipment between Allied Forces

- The development of the Joint Strike Fighter (JSF) is an example of one of the most extensive alliances in the defense sector,
- One of the main benefits is that, since the new product was created by the sharing of technology between the various allied nations, this may lead to greater synchronization of subsequent operations of the coalition of allied countries
  - Involves 9 different contractors from various countries, led by Lockheed Martin.
  - The F-35 is intended to replace 13 different types of aircraft across 11 different countries
- The intention of Secretary of Defense Robert Gates, as announced in April, 2009, to purchase more JSF's, emphasizes the commitment of the US to systems which are compatible with its allies and which are developed through global alliances.

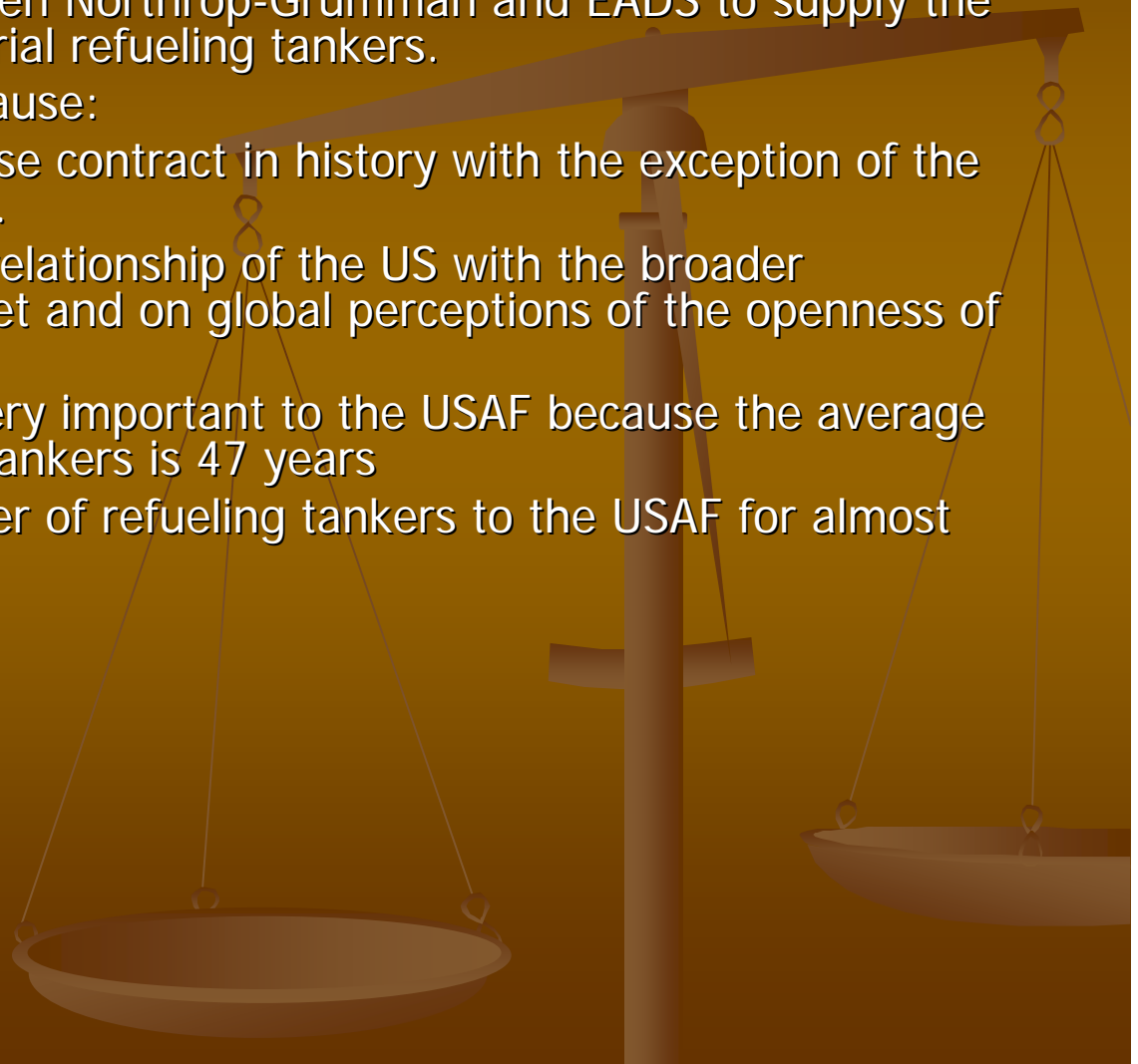
# The Role of Alliances in Developing Interoperable Equipment between Allied Forces

- The international structure of the relationships between the US contractors and the foreign contractors on the JSF has drawn criticism.
  - As of mid 2003, there was concern that the foreign contractors on the JSF did not have to share the growing development costs
  - A second concern, was that too many US jobs on the JSF were going overseas
  - A third concern from the Europeans dealt with uncertainty about the return on investment in the JSF.
  - A fourth concern arose surrounding technology transfer issues.
    - The UK threatened to exit the JSF program unless the US shared information on the stealth technologies, etc. related to the plane. This disagreement was subsequently resolved.



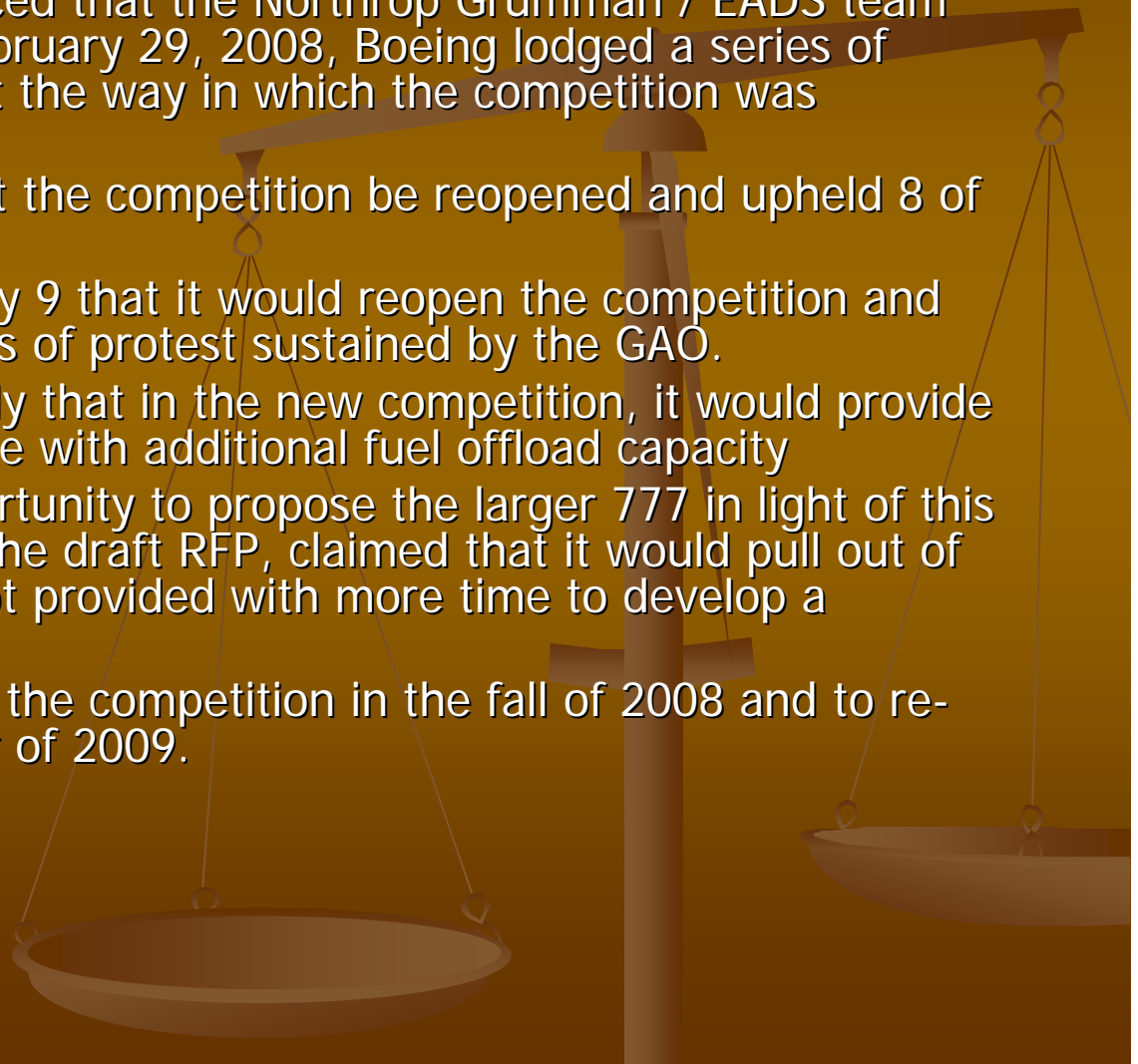
# The Role of Alliances in Entering New Markets

- Example: the alliance between Northrop-Grumman and EADS to supply the USAF with a new fleet of aerial refueling tankers.
- This is a landmark case because:
  - This is the largest defense contract in history with the exception of the F-35 Joint Strike Fighter.
  - Has implications of the relationship of the US with the broader European defense market and on global perceptions of the openness of the US defense market.
- The tanker competition is very important to the USAF because the average age of the existing KC-135 tankers is 47 years
- Boeing had been the provider of refueling tankers to the USAF for almost 50 years

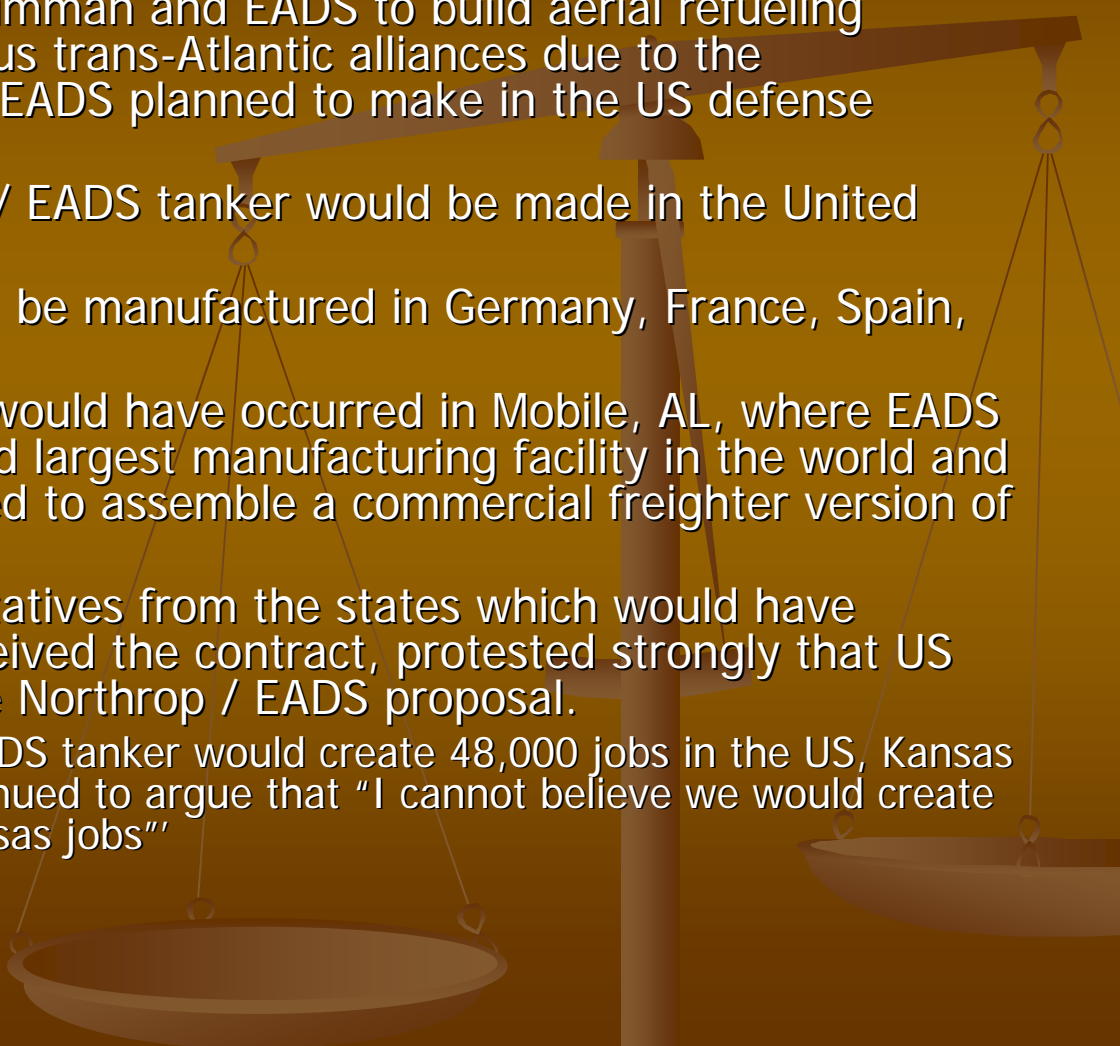


# The Role of Alliances in Entering New Markets

- When the Air Force announced that the Northrop Grumman / EADS team had won the contract on February 29, 2008, Boeing lodged a series of protests with the GAO about the way in which the competition was conducted.
- The GAO recommended that the competition be reopened and upheld 8 of Boeing's 100 protests.
- The USAF announced on July 9 that it would reopen the competition and would focus it on the 8 areas of protest sustained by the GAO.
- The Air Force stated explicitly that in the new competition, it would provide extra credit for a larger plane with additional fuel offload capacity
- Boeing, faced with the opportunity to propose the larger 777 in light of this "extra credit" suggested in the draft RFP, claimed that it would pull out of the competition if it were not provided with more time to develop a modified 777.
- The USAF decided to cancel the competition in the fall of 2008 and to re-open it again in the summer of 2009.

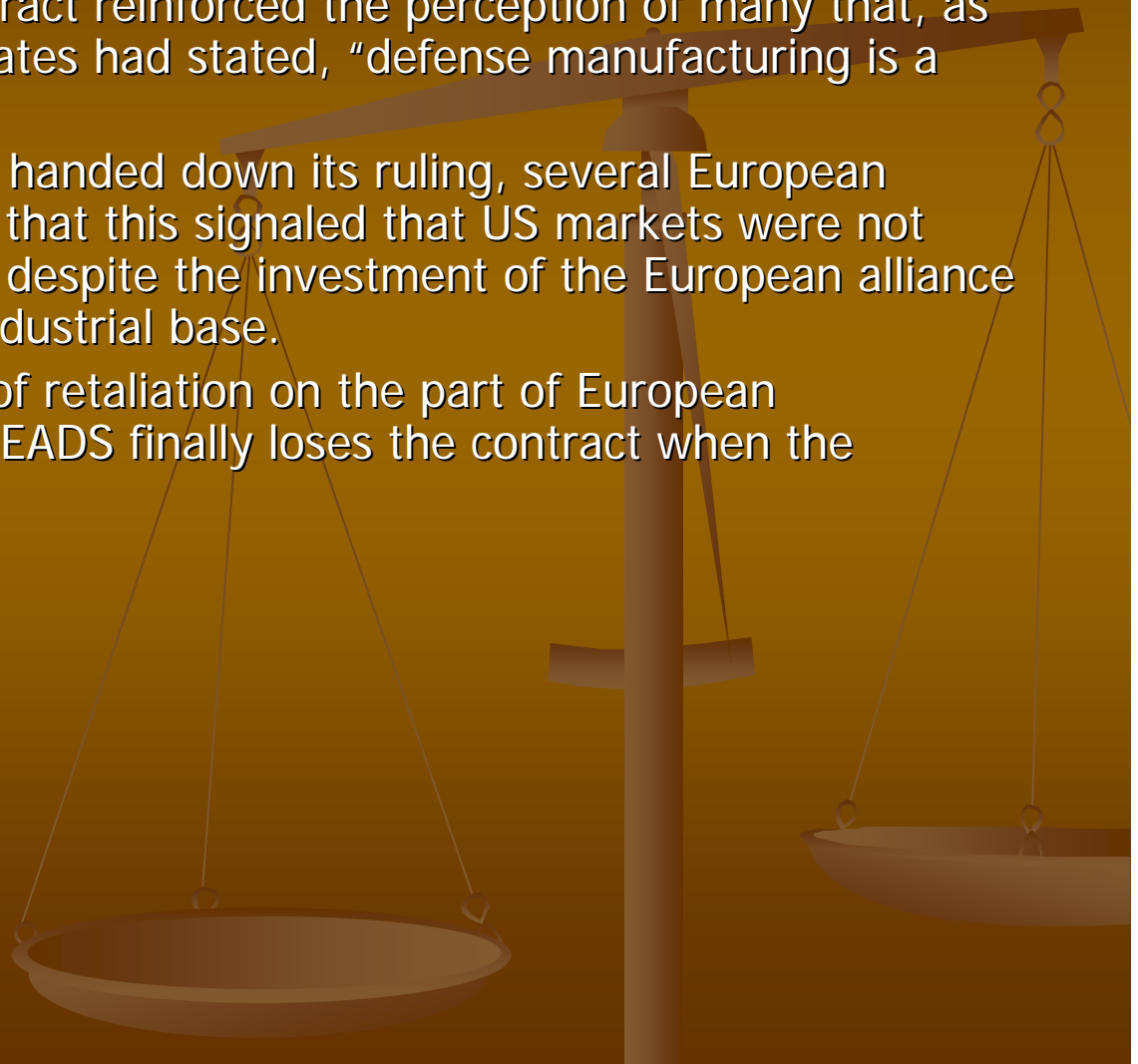


# The Role of Alliances in Entering New Markets

- The alliance of Northrop-Grumman and EADS to build aerial refueling tankers differed from previous trans-Atlantic alliances due to the substantive investment that EADS planned to make in the US defense industrial base
  - About 60% of the Northrop / EADS tanker would be made in the United States.
    - Some of the parts would be manufactured in Germany, France, Spain, and Great Britain
    - Assembly of the tanker would have occurred in Mobile, AL, where EADS planned to build the third largest manufacturing facility in the world and where it had also planned to assemble a commercial freighter version of the A330.
  - The Congressional representatives from the states which would have benefitted if Boeing had received the contract, protested strongly that US jobs would be lost under the Northrop / EADS proposal.
    - Although the Northrop / EADS tanker would create 48,000 jobs in the US, Kansas Representative Tiahrt continued to argue that "I cannot believe we would create French jobs in place of Kansas jobs"
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# The Role of Alliances in Entering New Markets

- The initial award of the contract reinforced the perception of many that, as Defense Secretary Robert Gates had stated, “defense manufacturing is a global business,”
- Nevertheless, after the GAO handed down its ruling, several European officials expressed concerns that this signaled that US markets were not open to European products, despite the investment of the European alliance partner in the US defense industrial base.
- Others expressed concerns of retaliation on the part of European manufacturers if Northrop / EADS finally loses the contract when the competition is re-opened.



# Conclusion

- The purpose of this analysis is to discuss the importance of linkages between US and European defense manufacturers .
- Alliances can provide many of the benefits of mergers, such as sharing R&D costs or allowing access into new markets, without many of the costs of mergers—difficulty in exiting, substantive integration costs, etc. Can be the prelude to a merger if the alliance is successful.
- The case studies in this analysis highlighted the role of trans-Atlantic alliances in:
  - Spurring alliances between competitors to ultimately create a market with several new products (CFM International and International Aero Engines)
  - Promoting national defense strategies (Boeing's alliance with EADS and other manufacturers in the missile arena)
  - Sharing R&D costs (the failed alliance between Boeing and other manufacturers to build a "super-jumbo" jet)
  - Developing interoperable equipment between allied nations (the JSF)
  - Entering new markets (the alliance between Northrop Grumman / EADS to supply new aerial refueling tankers).

# Conclusion

- The last two cases—the JSF and the tanker competition—will have a significant impact on subsequent trans-Atlantic defense alliances.
    - The JSF will break / has broken new ground in how issues involving global supply chain problems, cost absorption, and technology transfer will be resolved in later trans-Atlantic alliances.
    - The tanker competition, due to the magnitude of the contract, the size of EADS' proposed investment in the US, and the international publicity will affect perceptions about the openness of US markets
  - As countries are increasingly faced with budgetary strains from combating the current financial crisis, the fiscal strains imposed by an ageing population, and other areas such as education, infrastructure, etc., defense budgets will likely be under more pressure.
  - There will be a greater emphasis on obtaining innovative weapons systems products at low costs and in a timely manner.
  - As supply chain issues are smoothed out, there will be a significant opportunity for global alliances in the defense sector to play a valuable role in helping governments meet the challenges of the new millennium.
- 