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THE ARMADOLLAR-PETRODOLLAR COALITION
DEMISE OR NEW ORDER ?

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Abstract

This is the final paper in a series of four essays that deal with the political economy of armament and oil. Since the 1980s, military imports to the Middle East increased while revenues from oil exports declined substantially. These disparities highlight structural changes which affect the Armadollar-Petrodollar Coalition of large armament and oil companies. Relations between oil producing countries and petroleum companies were restructured and there was a surge in corporate concentration. A 'military bias' in Europe and Japan increased the global competition for military orders but also enhanced the cohesiveness of an emerging international armament lobby of military contractors. In addition, the domestic influence of the U.S. Armament Core was heightened by corporate concentration and symbiotic relations between contractors and the Pentagon. The two sides of the Armadollar-Petrodollar Coalition have consolidated their positions and may again seek to benefit from renewed cycles of armed conflicts and oil crises in the Middle East.

Resume

Ceci est le dernier d'une série de quatre articles traitant de l'économie politique des armements et du pétrole. Depuis les années 80, les importations militaires au Moyen-Orient ont augmenté alors que les revenus des exportations de pétrole ont diminué de façon substantielle. Ces disparités accentuent les changements structurels affectant la Coalition Armadollar-Petrodollar des grandes compagnies d'armes et de pétrole. Les relations entre les pays producteurs de pétrole et les compagnies pétrolières furent restructurées, et il y eut émergence de concentration corporée. Une 'tendance militaire' en Europe et au Japon accrut la compétition globale pour les commandes militaires, mais aussi augmenta la cohésion d'un lobby d'armement international de contracteurs militaires. En outre, l'influence domestique du Noyau d'Armement aux Etats Unis fut accentuée par la concentration des corporations et les relations symbiotiques entre contracteurs et Pentagon. Les deux parties de la coalition Armadollar-Petrodollar ont consolidé leurs positions et peuvent de nouveau chercher à bénéficier des cycles renouvelés de conflits d'armes et crises de pétrole au Moyen-Orient.

Introduction

In three earlier papers [Bichler *et al.* (1989), Nitzan *et al.* (1989) and Rowley *et al.* (1989)], we examined some major features of the political economy of armaments that had special significance in the age of oil crises. We argued that the growing dependency of large U.S.-based companies on foreign operations, coupled with their relative decline in civilian world markets, augmented a 'military bias' that was clearly discernible within the U.S. economy. Large U.S. corporations have increasingly shifted into weapon production and, during the 1970s, an 'Armament Core' of about 15 to 20 such corporations emerged to play a leading role in the evolution of the 'big economy'. A primary factor in their rise to prominence has been the growth of arms exports, particularly exports to the Middle East. The 'Era of Arms Exports' began with the international redistribution of income that reflected the oil crisis of the 1970s. At the same time, the militarization of the Middle East (and the consequent armed conflicts that ensued) raised and maintained arms sales to countries in this region at record levels. This development led to the formation of an 'Armadollar-Petrodollar Coalition' linking the large arms-producing corporations with their counterparts in the oil industry. Both groups of companies gained from the new relationship and had an interest in preserving the benefits that accrued from collaboration.

Earlier treatment of the political economy of armaments has often focused on the economic and political structure in the United States. We added a further perspective in our previous three papers when we stressed the significance of some international aspects of corporate activity. In

this final paper of our brief series on military spending, we examine new global changes which occurred during the 1980s and affected both the course of the Armadollar-Petrodollar Coalition and the economic well-being of the Armament Core. The essay is divided into several parts. In the first of these parts, we deal with the instability of the Armadollar-Petrodollar Coalition. We begin by describing the disintegration of the OPEC cartel and the subsequent restructuring of relationships between petroleum companies and governments of the oil-producing countries. We also outline how the linkages between armadollars and petrodollars were affected by the Iran-Iraq war, which brought the Armadollar-Petrodollar Coalition to an important crossroads in its brief history. Finally, we assess how pursuit of this war revealed the new vitality of challenges to the supremacy of the U.S.-based Armament Core in Middle Eastern markets.

Instabilities and challenges need not imply either the immanent demise of the Armadollar-Petrodollar Coalition or the decline of the U.S. Armament Core. In the second part of our essay, we look further into structural changes that seem to be occurring in the oil industry and discuss the likelihood of a 'larger OPEC' emerging in the 1990s. Then, in the third part, we examine possible paths for the future evolution of western armament industries in light of recent changes in Europe, Japan and the United States. We also assess the potential for another round of rising arms exports in the coming decade.

1. The Instability of The Armadollar-Petrodollar Coalition

1.1 The Ailing OPEC: New Structural Cleavages

The historical short-term development of the oil crisis during the 1970s was contingent, to a large extent, on the inelastic nature of world energy requirements. However, the severity of oil-price increases served as an effective stimulus to the adoption of comprehensive measures to 'conserve' energy throughout the industrial world. Improved energy efficiency and the onset of a worldwide recession in economic activity began to affect the oil market in 1980, when daily oil consumption started to fall from a peak of 65 million barrels that occurred in 1979. Daily consumption declined to a new level of 59 million by 1985. Since reductions in consumption were not matched by equivalent adjustments to supply, a glut of oil emerged with prices dropping continuously from \$35 per barrel in 1981 to less than \$15 in 1986.¹

Resistance by OPEC to this adversity was complicated by the actions of non-members of the cartel, which meant that the production of oil from the non-OPEC countries increased substantially. The share of OPEC in the world oil market thus slipped from 63 per cent in 1979 to 38 per cent only six years later. Initially, Saudi Arabia agreed to provide a 'cushion' for the oil revenues of other OPEC members by selling its own output at the cartel's official price and by adjusting its production to eliminate the pressure of excessive supply on this official price. Fulfilling this direct commitment in a situation of substantial glut meant that Saudi Arabia had to reduce its

output from a level of 10.3 million barrels per day in 1981 to one of 3.5 million in 1982 and, finally, to a mere 2 million in 1985. However, the Saudi Arabian action failed to stop the decline in prices. Eventually, failure was evident and the Saudi Arabian authorities reversed their stance. They increased output and the price of crude oil dropped below \$10 per barrel in 1986. Disintegration of the cartel's ability to control oil supplies has drastically reduced the size of oil revenues. For example, the petrodollar earnings of Middle Eastern countries fell from \$197 billion in 1980 to \$91 billion by 1984. Similarly, the aggregate net income earned by the 'Oil Six' (consisting of Exxon, Royal Dutch/Shell, British Petroleum, Chevron, Mobil and Texaco) declined from a peak of \$22 billion in 1980 to \$15 billion in 1984 and, subsequently, to just less than \$10 billion in 1987.² After a decade of cooperation based on growing petrodollar revenues and profits, the experience of shrinking income led to a renewed strife that affected the relationships between OPEC governments in the Middle East and the large oil corporations.

The first indication of conflict occurred in early 1982, when Saudi Arabia established Norbec, a small Swiss trading company that bypassed ARAMCO and began to sell crude oil directly to refiners. The ARAMCO partners (Exxon, Texaco, Mobil and Chevron) had effectively controlled levels of oil output in Saudi Arabia for almost five decades with their role as principal buyers of this oil. These corporations were now faced, for the first time, with Saudi Arabian competition that threatened to eliminate the preferred access which they had previously enjoyed as partners.³ The action by Saudi Arabia marked the beginning of a new restructuring of world oil markets.

During the previous upheaval of the 1970s, oil-producing countries had also challenged the power of the large oil companies. The countries assumed a leading role in the coordination of 'upstream' production activity but the oil companies retained their control over refining, transportation and marketing. The present turmoil, brought about by sharp price reductions in the early 1980s, induced the governments of oil-producing countries to venture into these downstream activities and again to challenge the *status quo* of the industry.

Kuwait was the country most affected by the subsequent restructuring. A state-owned company, Kuwait Petroleum, bought most of the European-based refining and marketing operations of Gulf Oil (after the latter merged with Chevron in 1984) and this Kuwaiti company now controls about 4,800 retail gas stations (Q8 brand) across Europe. Earlier, in 1981, Kuwait had acquired Santa Fe International Corporation (a big California drilling, engineering and oil-exploration company). This purchase signalled the beginning of a major shift of the country into exploration and production outside the domain of OPEC -- by expansion of activities into the United States, the North Sea fields, Asia and Africa.⁴ The most dramatic move in Kuwait's policy of integration was launched in 1987, when the Kuwait Investment Office (KIO) took advantage of the sale by the British government of its 37 per cent holding in British Petroleum and bought nearly 22 per cent of the oil giant's shares. Somewhat ironically, Kuwait became the largest shareholder of BP only 15 years after a situation of dependency in which half of the country's oil had been owned by the British company! The ownership 'coup' was so dramatic that the Thatcher government in the United

Kingdom, which launched the sale as part of its privatization strategy, was surprisingly compelled to intervene and, in the name of the 'public interest', instructed KIO to reduce the size of its holdings in British Petroleum to an acceptable level of 9.9 per cent. KIO consented to fulfil the terms of the British government's decree but the incident reveals the potential scale of the persistent trend toward downstream integration, which was being pursued by most oil-producing countries.⁵

In 1988, Saudi Arabia concluded the largest Arab investment in the U.S. oil industry, when it paid \$1.2 billion for a 50 per cent interest in the refining and marketing operations of Texaco in 23 U.S. states.⁶ Many other examples of integration can be cited: Abu Dhabi bought a 10 per cent stake in Spain's CEPSA and 5.5 per cent in France's Total; Libya bought Italian marketing and refining assets from Amoco and Texaco; Mexico acquired 34 per cent of Spain's Petroleos del Norte; and Venezuela entered into partnerships both with Southland's Citgo Petroleum and Union Pacific in the United States and with Germany's Veba Oel and Sweden's Axel Johnson Group in Europe.⁷

1.2 Changing Winds in the Middle East Arms Market

The second oil crisis of 1979-80 coincided with the outbreak of the Iran-Iraq War, which was to last eight years. Despite the dislocation of supply lines and other troublesome complications attributable to the armed hostilities, the subsequent collapse of crude oil prices was not deterred by the war. In some important respects, the situation that prevailed in the early 1980s differed from that following the Yom-Kippur War of 1973. The

earlier war was short and affected the oil market disproportionately by creating a 'crisis atmosphere' which facilitated price increases. Also, in 1973, the formal alliance of Arab countries against Israel assisted OPEC in launching an oil embargo to pressure the government of the United States and other economic actors. By 1980s, however, the OPEC front was no longer united and two important members of the cartel were themselves military foes. The disturbances occurring in the Persian Gulf, particularly the so-called 'tanker war' and attacks on oil ports, aroused nervousness in the oil market and perhaps exerted a positive influence on oil prices. However, rivalry prevailed instead of cooperation and, with the prolongation of hostilities in the Gulf, the likelihood of reorganizing OPEC to restore its earlier cohesion diminished. The overriding need of both Iran and Iraq for new weapons and ammunition only intensified the oil glut with the two countries stretching their production to the limit in order to finance their war efforts.⁸ The Iran-Iraq war thus created a new situation of falling oil prices, revenues and profits amidst rising arms imports. This development meant that militarization in the Middle East no longer assisted the collective interests of the large oil companies and perhaps even began to undermined them.

Beside inserting a discordant wedge between arms companies and their counterparts in the oil industry, the Iran-Iraq War also markedly altered the structure of the Middle Eastern arms market itself. As we indicated in Rowley *et al.* (1989), the early 1980s were the most lucrative years for companies exporting arms to the region.⁹ Now, for the first time since 1967, the U.S.-based armament producers were losing ground to competitors from

Europe, the Soviet Union and Third World countries.¹⁰ The loss of the Iranian market and the U.S. government's ban on arms shipments to Iraq effectively excluded U.S.-based arms producers from supplying the Iran-Iraq War, which proved to be the most expensive armed conflict since the Vietnam War.¹¹ The gap created by the absence of the United States was quickly filled by suppliers from another forty countries, who often supplied both Iran and Iraq simultaneously.¹²

The Iran-Iraq War escalated tensions in the region and drew more moderate countries (such as Saudi Arabia, Kuwait, the United Arab Emirates and Oman) deeper into the militarization process. These countries approached the U.S. government with pleas for assistance. The Reagan Administration, despite its own rhetoric calling for disarmament in the Third World, readily responded in a favourable manner but its practical efforts to provide military aid met resistance within the United States.¹³ Military deals with the 'third parties' might have compensated U.S. producers, at least partially, for their foregone sale revenues in the Iraq-Iran War. However, the interests of the Armament Core were generally not sustained when such deals were openly proposed. In 1981, President Reagan managed to override strong congressional opposition to the sale of five Boeing-made AWAX planes to Saudi Arabia but he was less successful with his subsequent proposal for Middle Eastern arms sales. For the first time, weapon deliveries that had executive backing were effectively blocked by opponents in the U.S. Congress.¹⁴ A persistent deadlock between the Reagan Administration and Congress frustrated Gulf states, who responded by taking their demands for armaments elsewhere. Arms contracts were thus signed with the Soviet Union

and West European producers. U.S.-based weapon companies suffered their strongest blow in July 1988, when negotiators from the United Kingdom signed the 'deal of the century' and undertook to supply Saudi Arabia with \$25 billion worth's of military hardware, construction and technical support over the next two decades.¹⁵

1.3 The Demise of the Armadollar-Petrodollar Coalition?

The structural developments outlined in sections 1.1 and 1.2 raise several groups of interrelated questions, which are listed below.

(1) The disintegration of the OPEC cartel disturbed the relationships that existed between Middle Eastern countries and the large oil companies. Will the attendant changes bring an end to the cooperation between the two sides? Is the world heading toward a prolonged era of low oil prices? Will the further shrinking of oil revenues bring an end to the 'Era of Arms Exports'?

(2) The Iran-Iraq War increased the significance of the Middle East for some arms exporters but probably enhanced the downward tendency of oil prices. Did the large oil companies consequently lose their interest in the militarization of the Middle East? Will they cease to cooperate as political and economic allies of the armament firms?

(3) Since the United States did not have a major role in supplying either of the belligerent countries in the Iran-Iraq War, the market share

of U.S.-based arms producers declined relative to the shares of producers based in many other countries. This decline provided a self-interested reason for some U.S. producers to support efforts toward ending this particular war. Can we infer that this development signifies a general change in the overall strategy of the U.S. arms-producing companies with respect to their potential Middle Eastern markets?

(4) The successful opposition within the United States to further militarization of moderate ('third-party') OPEC countries effectively undermined the interest that members of the Armament Core had in the promotion of such military sales. Does this political setback indicate a decline in the powerful leverage of the Armament Core?

In addressing the complicated issues that are reflected in these questions, we cannot expect to provide definite historical predictions. Instead we must settle for a more modest programme of exploring the main currents of structural change and try to clarify the directions that might result from the active forces which can be identified. We begin with a look at the evolving situation of the oil industry.

2. Toward a 'Larger Opec'?

2.1 The 'Integrated' Oil-Producing Country: Friend or Foe?

The current diversification of oil-producing countries into the downstream operations of marketing and refining has drawn objections from the large oil companies. However, such vertical integration may not be contrary to the companies' long-term interests. In many respects, the situation resembles that for the earlier structural conflict in the 1960s and early 1970s. The basic rationale for the emergence of the OPEC cartel in 1960 was the inability of the 'Seven Sisters' to coordinate their own crude price strategies. Initially, the oil companies even struggled against restrictive measures adopted by OPEC but they eventually came to recognize the benefits that could accrue from an acceptance of the 'limited flow' principle, as promulgated by the cartel, and embarked on an era of cooperation [as we describe in Rowley *et al.* (1989)]. Interestingly, the later inability of OPEC to maintain or raise oil prices during the 1980s was again affected by a lack of cooperation among the large oil companies. The current process of restructuring the oil industry is directed, at least in part, to overcome the obstacle of inadequate cooperation.

The source of current price instability can be traced to particular features of marketing practices. In terms of volume, most crude petroleum is sold through medium and long-term contracts, while only a smaller quantity is delivered through the immediate 'spot market'. In terms of price, however, the spot market has a pivotal role since the volatile spot price

also affects the basic prices of new medium and long-term contracts. During the middle of the 1980s, excess global production amounted to a mere 5 per cent of the overall oil consumption of about 50 million barrels per day. The 2.5 million barrels of daily overproduction were mainly channelled through the small spot market and thus exerted a powerful downward pressure on spot prices. Clearly the emergence of tensions from adverse price conditions had little to do with the operation of a mythical 'invisible hand' within an efficient market but rather stemmed from the inefficiency of large oil companies, when they failed to adequately 'manage' the spot market. Had they used their dominance in the marketing arena and pursued effective supply management, members of the 'Oil Six' could have taken advantage of the highly inelastic nature of global oil requirements. The companies might have maintained spot oil prices at their existing levels or, at least, slowed their decline. As we noted in Rowley *et al.* (1989), the well-being of the large oil companies is ultimately associated with high crude prices even though they have vertically-integrated operations. Somewhat surprisingly, the companies sought to bid down the price of crude oil that they purchased from OPEC countries and undermined their own broader interest.

The lack of foresight revealed by the oil companies in the 1980s was not matched by strategists for the major oil-producing countries, such as Saudi Arabia and Kuwait. When the latter strategists realized the significance of marginal trading for the spot market, they sought to acquire a larger role in the determination of spot prices. With their own marketing channels and refining operations, the large oil producers in the OPEC cartel could succeed where the oil companies failed. By altering their own spot

sales to their downstream subsidiaries, the countries lessened the marginal 'excess supply' and could even generate some degree of excess demand. In this way, their intrusion into downstream operations might stabilize the volatile marketing arena to the benefit of all producers, including the large oil companies. Any objections that the companies might advance to restrain such intrusions of the oil-producing countries into downstream activities can be further muted by other considerations. First, much of the restructuring has taken the form of joint ventures between individual governments and major companies that are already well-established within the industry. Second, with their involvement in similar vertical structures, the oil-producing countries and the major oil companies must share a consistent set of priorities. We suggest that such involvements and common interests provide a strong imperative for cooperation between the two groups once the present stage of restructuring is completed. The degree of this cooperation may be comprehensive rather than weak and fragmented.

2.2 Industrial Stagnation and Corporate Concentration

While the oil-producing countries were seeking vertical integration, the oil industry experienced a surge in corporate concentration. The U.S. economy has been affected by a wide stream of acquisitions and mergers since 1975 and the oil industry was not isolated from the aftershocks of these structural adjustments or from the general climate of takeovers, financial raiders, and dramatic changes in ownership patterns. However, the consolidation of the petroleum industry that occurred during the 1980s was directly stimulated by the sharp decline of oil prices rather than by

general movements in the economy. Large oil companies accumulated substantial cash hoards during the boom years of the oil crisis but the lower petroleum prices that occurred in subsequent years made their investment in exploration decreasingly lucrative. Thus, instead of replacing their oil reserves by exploring new fields, the major oil firms obtained them in Wall Street by acquiring reserve-rich rivals. During the 1981-1985 period, there were 524 oil and gas-related mergers and acquisitions, which were valued at \$77 billion. The number of these deals amounted to only 4 per cent of the economy-wide total but they represented about 17 per cent of the aggregate dollar value of all such transactions.¹⁶

Although some oil firms were acquired in diversifications by non-oil companies, the substantial flood of energy-related mergers was dominated by the oil-six companies and the outcome greatly enhanced their combined power.¹⁷ In 1984, Mobil acquired Superior Oil for \$5.7 billion, Texaco took over Getty Oil for \$10.1 billion, and Chevron concluded its \$13.3 billion merger with Gulf Oil. In 1985, Royal Dutch/Shell acquired, for \$5.7 billion, the remaining 30 per cent share of Shell Oil. British Petroleum purchased Britoil PLC for \$4 billion and, in 1987, purchased the remaining 45 per cent of Standard Oil of Ohio's shares for \$7.6 billion. Exxon, the world largest producer, spent \$9.6 billion during the 1983-1988 period to buy back its own shares and, in 1989, purchased Texaco Canada for \$3.8 billion.

The grip of the Oil Six over the oil industry persistently tightened. Even with depressed prices, the Oil Six still earned an average annual net profit of \$15 billion during the 1980s, more than any other comparable group

within a single industry. Companies in other fields used their profits to diversify their activities but the large oil companies found difficulty in achieving similar diversification. For instance, Exxon's entry into office automation and electrical equipment and Mobil's acquisition of a retailing firm were abject failures. Even if these particular actions had succeeded, a wide drive by the Oil Six to diversify away from the troubled petroleum industry was infeasible. Byrne (1988) points out that if Exxon wanted to increase its earnings by just 10 per cent, it would have to acquire a company with \$500 million in annual profits -- in 1987, there were fewer than 75 such companies in the United States, many of which were oil companies.¹⁸

2.3 The New Cooperation to Come and the Next Oil Crisis

The downstream diversification of oil-producing countries, their closer ties with the large oil companies, and corporate concentration within the industry all prepare the way for a future 'oil shock'. The prospects of such a crisis occurring are enhanced because cheap energy prices and the long economic expansion in developed countries have finally brought about increases in world oil consumption. At the same time, the prolonged reduction in exploratory activity caused non-OPEC production to peak in 1986 so the share of OPEC in world output is once again rising. This shifting balance was made clear in early 1989, when non-OPEC producers offered to reduce their crude exports for the first time.¹⁹ Because of their smaller size, non-OPEC producers can hardly affect the market price by altering their production levels. During the 1970s, these producers were able to

increase their output and revenues but, in 1987-1988, they were seriously harmed by the Saudi Arabian decision to flood the market with additional supplies of oil. The offer to cut non-OPEC exports is significant (even if the offer amounts to only 0.5 per cent of the present oil supplies from non-communist countries). More than an actual contribution toward regulating supply, the offer indicates a desire by non-OPEC countries to cooperate with OPEC governments, perhaps in the formation of a wider organization of oil-exporting countries.

While the restructured oil arena may be susceptible to a new energy crisis in the near future, the occurrence of a crisis might depend on a major outbreak of hostilities in the Middle East. Since oil consumption is so slow to respond to price changes, even a reduction of 5 per cent in oil production could be sufficient to create an oppressive atmosphere of 'shortage' and to spark a price explosion. However, because of the substantial number of participants in this market and their mutual suspicions, the recognition of a common interest and its translation into coordinated actions may not occur unless some dramatic event stimulates attention. In view of this need for an effective stimulus, a Middle Eastern armed conflict may be an essential ingredient for the generation of the next oil crisis.

There is a hazard of imprecision here. Middle Eastern wars were the instrument of oil crises rather than their cause. Global oil 'scarcity' has always been the result of a conscious decision to halt production rather than the consequence of either the physical destruction of oil installations

or the dislocation of primary shipping routes. Nevertheless, armed conflicts in the Middle East created the appearance of shortage, which the oil-producing countries and oil companies were unable to establish by other means. As long as oil remains the world's main source of energy and the Middle East remains the primary location of oil reserves, major oil companies are likely to continue their support for the militarization of the region. Thus the basic motivation for the Armadollar-Petrodollar Coalition remains intact.

3. Competition and Cooperation in the Global Armament Market

3.1 A 'Military Bias' in Europe and Japan

We noted in Nitzan *et al.* (1989) that the economic role of U.S.-based corporations had started to decline in civilian markets by the late 1960s. This decline spread to the global market for armaments by the early 1980s. A struggle over shares in this market, resulting from structural changes that occurred in Europe and Japan, first appeared in the Middle East and has now expanded to other areas. During the 1980s, European governments, particularly those of France, West Germany, the United Kingdom and Italy, supported massive arms shipments to the Middle East. The common arguments to explain the governments' actions were that such shipments secured oil supplies and that they assisted the 'recycling' of petrodollars. However, the zeal of these governments in pursuing arms sales has deeper structural roots. In our view, the zeal is merely a prominent sign of a growing 'military bias' in these countries, similar to the one that occurred in the United States.

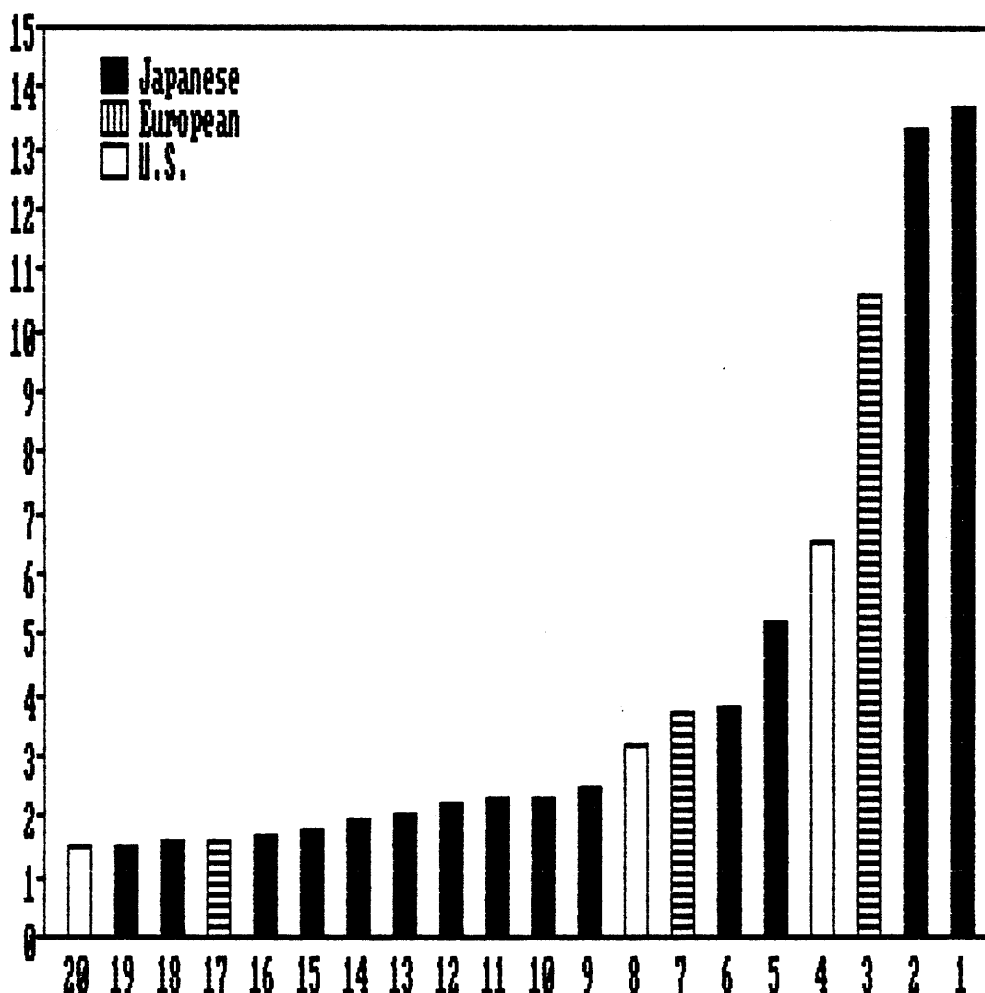
During the late 1960s and 1970s, some large European and Japanese corporations were enlarging their shares of civilian markets at the expense of their American counterparts. This redistribution of economic activities meant that the European and Japanese companies could expand somewhat faster than their national economies. With the rapid increase of corporate concentration since the early 1980s, however, these firms outgrew the saturated civilian markets in which they operated. As a result, they also

began to experience a lack of 'offsets' for corporate savings. The potential difficulty of excessive liquidity is illustrated by the entries of Figure 1, which rank 20 industrial corporations with respect to the size of their hoards of cash and marketable securities in 1987. The accumulation of such large sums of liquid capital indicates that these companies grew faster than their investment outlets. The difficulty is particularly acute for 14 large Japanese firms, who account for about two thirds of the aggregate value of cash and securities held by the 20 companies. As third-world conglomerates (such as Korea's Lucky Goldstar, Samsung, Daewoo and Hyundai) became increasingly competitive, the incentive to invest in civilian activity was further reduced. Consequently, many of the large European and Japanese producers followed the path taken by their American counterparts and turned to the defence sector as a primary sphere for their expansion.

The progressive shift toward military production is well illustrated by the transformation of Germany's Daimler Benz from a car producer into one of Europe's largest military-industrial conglomerates. This transformation started in the middle of the 1980s, when NATO lifted a 30-year ban on German production of long-range weapons and thus set the stage for the consolidation of the German defence industry. In 1985, Daimler Benz had \$24 billion in sale revenues, 97 per cent of which came from the production of cars, trucks and engines. Within three years, as a result of a series of takeovers, Daimler Benz had \$44 billion in annual sales revenues of which only 75 per cent came from its traditional activities in automotive production and over 10 per cent were obtained from defence-related sales. The diversification occurred because the company's automotive business was

Figure 1

TWENTY INDUSTRIAL COMPANIES WITH THE LARGEST AMOUNT OF CASH AND MARKETABLE SECURITIES (LESS INTEREST BEARING DEBT)^a (\$ billion)



- | | | | |
|------------------------|------------------|---------------------|------------------------------|
| 1. Toyota Motors | 6. Nissan Motors | 11. Nippon Oil | 16. Bridgestone ^b |
| 2. Matsushita El. Ind. | 7. Daimler Benz | 12. Nippondenso | 17. BASF Group |
| 3. Siemens | 8. Boeing | 13. Sanyo Electric | 18. Fuji Photo Film |
| 4. Ford Motors | 9. Kirin Brewery | 14. Takeda Chemical | 19. Sony ^c |
| 5. Hitachi | 10. Toshiba | 15. Honda Motors | 20. IBM ^d |

SOURCE: Rapoport (1988).

^a Figures for Japanese corporations represent parent company's assets only. Others are consolidated.

^b Net cash before the \$2.6 billion acquisition of Firestone in March, 1988.

^c Net cash after the \$2 billion acquisition of CBS Records in November 1987.

^d The twentieth position is shared by IBM and Sharp, each with \$1.5 billion.

too profitable!²⁰ During the early 1980s, the company had accumulated several billion Deutsche Marks in cash but could find no profitable outlet for the use of these liquid assets in the mature car industry. Instead, the funds were redirected outside the industry to acquire the diesel and jet-engine producer Motoren-und Turbinen-Union, the electronics giant AEG and Germany's two largest aerospace producers, Dornier and Messerschmitt-Bolkow-Blohm. All four of the acquired companies were actively involved in the defence sector.²¹

The significance of these acquisitions may be far reaching. Daimler Benz is controlled by Deutsche Bank, which engineered the structural change.²² Beside being Germany's largest financial institution, Deutsche Bank exercises considerable influence on major companies in various industries, which include other defence contractors.²³ Daimler Benz now controls about 40 per cent of Germany's defence budget and, when backed by Deutsche Bank's financial clout, the conglomerate and its allies form a powerful Armament Core. Furthermore, Daimler Benz's defence takeovers were actively encouraged by the German government, which is unlikely to withdraw support from the Deutsche Bank/Daimler Benz group.²⁴

The 'military bias' at Daimler Benz may still be unique in its intensity but similar tendencies exist in other developed capitalist economies. Perhaps the most significant development in the shift toward military production occurred in 1985 when, for the first time since the end of the Second World War, the Japanese government bowed to pressures from large domestic corporations and agreed to increase its defence spending

above the previous informal ceiling of 1 per cent of GNP.²⁵ With a 'military bias' now extending beyond the United States and into both Europe and Japan, the stimulus to international competition over world military budgets is clearly evident.

3.2 The Battle Over Military Procurement

In the struggle for larger shares of the world-wide armament markets, the competitors went beyond the Third World and entered the bidding for parts of the domestic budgets in their rivals' base countries. We illustrate this process with several examples related to (1) foreign bidding for major U.S. government contracts, (2) competition for European procurement, and (3) conflicts over the Japanese military buildup.

The United States

In 1986, the Fiat car manufacturer launched a campaign to persuade the Libyan government to sell its 15 per cent share of the company's common stock. This action came after the Pentagon cited the presence of partial Libyan ownership as the principal cause of its decision not to sign a contract worth \$7.9 million with the company. Libya finally sold its stake in the company and the entire pattern of the Fiat ownership was restructured in a costly financial operation.²⁶ The incident is especially interesting as the overall value of both the foregone contract and Fiat's other contracts with the Pentagon was very small relatively to Fiat's annual sales, which amounted to about \$18 billion in 1985, and did not appear to justify the

turmoil.²⁷ The puzzle of choices by Fiat's management may be resolved if we recognize that, during the middle of the 1980s, the company was caught in a dilemma that resembled the situation faced by Daimler Benz. After suffering severe losses for a decade, the company made a dramatic recovery and achieved record levels for its net profits in 1985 and 1986 (amounting to \$884 million and \$1.9 billion respectively). However, the size of the European car market only grew at an annual rate of 1-2 per cent and Fiat would need to make a heavy commitment to new investment in fixed capital if it wished to retain a competitive edge in this market. Instead, Fiat chose to diversify and one of its prime objectives was to enlarge its presence in the armament and aerospace markets of the United States, particularly in the programme for the Strategic Defence Initiative.²⁸

Similar intrusions into the U.S. market for armaments were made by other European companies. During the early 1980s, France became the world's third largest arms dealer (after the United States and the Soviet Union) and, by 1984, French firms already sold more arms to the United States than their U.S. rivals sold to France.²⁹ Although their German counterparts anticipated some difficulty in getting Pentagon contracts for security reasons, all of Deutsche Bank's newly acquired firms submitted bids for participation in the Strategic Defence Initiative programme.³⁰ This programme also attracted interest from the major Japanese companies, who received their government's approval to participate in the competition after the policy reversal of 1985. In their pursuit of U.S. Defense funds, foreign companies also began to seek ownership of domestic U.S. military contractors. For example, in 1987, the large British armament producer,

Plessey, submitted a bid to acquire the U.S.-based electronics conglomerate Harris Corporation. The attempt failed when the Pentagon objected to the takeover.³¹ Plessey, however, continued to search for suitable acquisitions and, in 1988, the British company paid \$310 million for Singer's electronics-systems division. This action raised the share of receipts from U.S. Defense contracts in the company's overall income from military sources to about 35 per cent.³² Other British firms are active here. In 1988, the 'British invasion' saw \$2 billion spent to purchase six U.S. military contractors.³³ Perhaps of more significance but relatively unnoticed at the time, Japan's Nippon Mining acquired the defence contractor Gould for \$1.1 billion.³⁴ This was the first acquisition of its kind but, with the unprecedented levels for cash hoards of Japanese corporations, further moves by Japanese companies into the U.S. industry seem inevitable.

Europe

While resisting the growth of international competition for shares in the U.S. military budget, American companies face an uphill battle in the search for European and Japanese armament contracts. In 1984, the U.S. arms producers enjoyed a \$1.8 billion trade surplus in military trade with their NATO counterparts but they were already finding new contracts much harder to obtain. The governments of France and West Germany, in that year, sought to protect their domestic firms from international competition when they signed an agreement to prohibit acceptance of the sole American bid to supply attack helicopter. To circumvent obstacles of this type, Bell Helicopter of Textron undertook a joint venture with Short Brothers of Northern Ireland to

bid for Royal Air Force contracts, while Sikorsky Aircraft of United Technologies teamed with Dornier of West Germany (now a Daimler Benz subsidiary). Previous collaboration between American and European firms usually involved simple licensing arrangements but the current partnerships require the U.S. firms to undertake more substantial technical cooperation. A new atmosphere is prevalent. As a Vice-President of Bell Helicopter acknowledged: 'Without a partner, we wouldn't make any significant [European] sales in the future'.³⁵

During the 1970s, General Dynamics and United Technologies were able to sell the F-16 aircraft to the European members of NATO by agreeing to manufacture the fighter-bomber in Europe. However, in the later 1980s when NATO is preparing for the aircraft's replacement, a similar arrangement is no longer sufficient. In 1987, a European consortium (which had participation from West Germany, the United Kingdom, Italy and Spain) drafted an agreement to build 1,000 new planes for a projected price of \$30 billion. Competition from U.S. companies for part of this effort was adversely affected by an insistence that no bids be allowed to include equipment subject to reexport controls. (Most of the military aerospace equipment from producers in the United States is subject to such controls so the transfer of sensitive technology to the Soviet Union and its allies can be blocked.) The Europeans argue that the existence of such controls is unacceptable for they preclude exports of the new plane to non-NATO countries, effectively halving the size of potential sales. While the ultimate outcome of this policy divergence is unclear, it seems likely that the new European attitude will force some U.S. firms (such as Boeing,

Honeywell and General Electric) to establish even closer ties with their present European competitors if they wish to enter the contest for this aircraft business.³⁶

The growing ties of large European and American arms companies was recently illustrated in a series of interrelated attempts to takeover or merge with competitors. These began in 1985 when G.E.C., a British company, bid for a smaller defence competitor, Plessey, but was rebuffed after the Thatcher government dissented on anti-monopoly grounds.³⁷ G.E.C. was not unduly discouraged and, together with Germany's Siemens, launched a second \$3.1 billion bid for Plessey in 1988 -- the first cross-border combination within the European defence market. Clearly the British company hoped the emerging pan-European climate, associated with the plan for comprehensive integration in 1992, would lessen previous antitrust objections. The partners sought to merge the defence operations of Plessey and Siemens into a new company in which both Siemens and G.E.C. would take a 50 per cent stake. If successful, G.E.C. would enlarge its share of the U.K. defence budget and, by separating the new company from its own defence operations, would remove the governmental concern over monopoly. Siemens, on the other hand, would gain support against the competition of its archrival in Germany, Daimler Benz. Furthermore, the companies would have access to their partner's base country and both might build on Plessey's U.S. operations to bid for American Defense contracts.³⁸ The bid was immediately rejected by Plessey, which embarked on a 'Pack Man' strategy and joined an international consortium to prepare a reverse \$12 billion bid for G.E.C. itself.³⁹ This aggressive retaliation was ultimately diffused in 1989 when a third party,

the U.S.-based corporation General Electric, took advantage of G.E.C.'s plight and forced the British company to enter three joint ventures in the areas of medical equipment, electrical distribution equipment and consumer appliances.

The entry of General Electric to this imbroglio was not surprising since the American corporation had earlier tried to attract partners to such ventures. When Plessey sought assistance in its reverse bid for G.E.C., General Electric seemed ready to participate but G.E.C. quickly recognized its weak position and acceded to the friendly cooperation of the joint ventures.⁴⁰ For General Electric, these ventures are more significant than the \$2.6 billion of civilian revenues that they might generate. The process of concentration in the European defence sector is just beginning and U.S. firms need to find means of entry which will permit them access to future military contracts of the EEC. By establishing an effective working relationship with one of the largest European companies, itself active as an arms contractor, General Electric is taking a sensible step toward facilitating a later request to become one of the main players in the European arms industry, as well as making a move to a strategic position from which to launch further acquisitive raids and joint ventures.⁴¹

Japan

Since the early 1980s, U.S.-based producers of armaments have faced a severe political dilemma, which stemmed from the desire of the Reagan Administration to make the United States' NATO and Japanese allies assume a

greater share of the 'defence burden' and increase foreign military budgets. The U.S. government hoped, among other motivations, that the increases in military budgets would boost the levels of foreign military sales by constituent members of the Armament Core. However, this desired outcome failed to occur. Instead the policy intensified the 'military bias' of European and Japanese companies and stimulated their emergence as formidable competitors. Thus U.S. arms manufacturers were increasingly forced to choose between a secondary role in foreign markets or absence from the markets. Perhaps the best example of the potential results of this situation is provided by the conflict over the new Japanese jet fighter.

In September 1985, the Japanese government decided to eliminate a self-imposed ceiling on military spending and it embarked on an ambitious five-year plan to spend \$76 billion on defence projects. Caspar Weinberger, the U.S. Secretary of Defense and a persistent critic of the Japanese 'free ride' on defence, applauded the decision but his satisfaction with the apparent policy reversal soon turned to frustration.⁴² In November 1986, Japan disclosed a plan to replace 70 ageing Mitsubishi F-1 fighter-bombers that had been produced under U.S. licence. Instead of buying a more modern aircraft from either General Dynamics or McDonnell Douglas, Japan's Defence Agency announced its support for a new FSX fighter -- to be domestically developed and produced by Mitsubishi Heavy Industries and two Japanese subcontractors, Kawasaki Heavy Industries and Fuji Heavy Industry.⁴³ Japan planned to order 100 of these new aircraft so U.S.-based companies stood to lose a potential order worth about \$8 billion. An opportunity to challenge their exclusion arose in early 1987, soon after the disclosure that Toshiba

Machine and Kongsberg Vapenfabikk (Norway's largest defence contractor) had illegally sold special tools to the Soviet Union, which reduced the noise made by their naval propellers. The U.S. Senate reacted swiftly to this disclosure and, in May of 1987, voted to prohibit Toshiba and its partner from selling any product in the United States for a period of two to five years. A month later, Weinberger visited Tokyo to convey the strength of congressional sentiment and the Japanese government responded by amending its plans. In October, the government agreed to use the F-16 of General Dynamics as the basis for the FSX design.⁴⁴ Subsequently, the trade sanctions against Toshiba were weakened and a threat to block Japanese bids for the Strategic Defence Initiative programme was withdrawn.⁴⁵ The first round of skirmishes over the FSX project was over but further disagreement was to follow.

During the next year, defence officials of both countries sought to resolve the outstanding difficulties that plagued the tentative agreement. One public obstacle was the vigorous resistance displayed by some Americans to the idea of giving sensitive information on U.S. military technology to Japanese companies, who might become significant competitors in the long term. U.S. opponents of the deal (such as Clyde Prestowitz, a former trade negotiator, for example), estimated the Japanese companies would obtain major aircraft technology worth about \$7 billion, in exchange for which the United States might expect just \$500 million's worth of subcontracting work. Many American observers feared that the deal would provide Japan with the infrastructure to create a fully-fledged domestic aerospace industry by the middle of the 1990s. Editors of *Business Week* illustrated a popular view

when they insisted in their issue for February 20, 1989, that the deal should be 'knocked out of the sky'. The real obstacle to agreement, however, was more prosaic -- although Weinberger's successor as Secretary of Defense, Frank Carlucci, initialled the co-development agreement in June 1988, confirmation of its final terms was delayed by the inability of the two principals, General Dynamics and Mitsubishi Heavy Industries, to divide the work between them. In January 1989, the dispute ended when the companies accepted a compromise by which 40 per cent of the development budget for the fighter project, which was worth \$1.3 billion, would go to General Dynamics and the remaining 60 per cent to Mitsubishi Heavy Industries.⁴⁶

Managers of the major U.S.-based corporations clearly understand their weak capacity to restrict the growing 'military bias' of their foreign competitors. They sought to 'position' their companies in favourable secondary roles when primary ones were infeasible. The president of General Dynamics, Herbert F. Rogers, insisted for example that his company participated in the FSX as an instrument of U.S. government policy but he also conceded that a primary goal of this policy was to tie the new Japanese aerospace industry to U.S. producers.⁴⁷

The changing international status of U.S. arms manufacturers in some areas must be interpreted with care. First, such relative decline is not likely to lead to waning of global military spending. Somewhat paradoxically, the growth in global competition in the 1980s produced a concerted drive by military contractors to cooperate in an international armament lobby toward stimulating further militarization. Second, a common

international perception of the need for a larger market preserved the global primacy of the U.S. arms manufacturers -- given their privileged access to the world largest Defense budget, no other outcome was possible. Despite recent setbacks, the U.S. Armament Core retains its leading role in military markets.

3.3 The Consolidation of the U.S. Armament Core

The Armament Core exhibits an increasing degree of internal cohesion. Consolidation of the core is encouraged by the process of concentration within the U.S. defence industry and by the interdependence of the Pentagon with its main contractors. We briefly discuss each of these factors.

Concentration at the Core

Concentration within the U.S. defence industry was affected by the pronounced shift in focus to larger and fewer major systems. To illustrate this shift, consider the changes affecting military aircraft. During the 1950s, the U.S. aerospace industry built six new fighter aircraft for the Air Force but only two fighters emerged in the 1960s and two more fighters were developed in the 1970s. Looking forward, only one new model -- the Advanced Tactical Fighter (AFT) -- will be developed before the end of the century. A similar pattern was evident in orders from the Navy and Army so, not surprisingly, with fewer aircraft to build for the home country, the number of U.S. makers of combat aircraft fell from 14 during the 1950s to 7 in the 1980s.⁴⁸ Individual military contracts became increasingly expensive

and thus added the potential for destabilizing the industry. However, significant disruption only occurred in the 1980s, when their growth in size meant that new contracts were 'too big' for the financial well-being of even the largest U.S. companies. Through the 1990s, the Pentagon plans to spend \$20 billion for two nuclear aircraft carriers (including escort ships and planes), \$35 billion on 450 Advanced Tactical Aircraft (ATA) for the Navy, \$40 billion on 750 Advanced Tactical Fighters (ATF) for the Air Force, \$60 billion on the Army's Forward Area Air Defense System and \$80 billion for 132 Stealth Bombers for the Air Force.⁴⁹

The staggering size of such contracts upsets an orderly balance of separate competitive producers in the armaments industry. An unsuccessful bid for very large contract can imply bankruptcy so military contractors are being forced into joint ventures. Virtually all bidding for new large systems are now submitted by corporate teams. For instance, Lockheed, General Dynamics and Boeing collectively compete against the combination of Northrop and McDonnell Douglas for the ATF. Similarly Northrop, Grumman and LTV group their resources to challenge McDonnell Douglas and General Dynamics for the ATA; and Boeing and United Technologies compete against Textron and McDonnell Douglas for the proposed Army Attack Utility Helicopter (LHX). General Electric and United Technologies, who together form an effective aircraft-engine duopoly, now jointly produce two military engines.⁵⁰

But collaborative activities and joint ventures alone were often considered insufficient for the survival of individual Defense contractors

and additional strategies were sought. One alternative requires unethical conduct, perhaps bribery of government officials, in pursuit of desired contracts.⁵¹ Legal alternatives involved acquisitions of rival contractors who were likely to obtain such contracts. This generally resulted in further concentration and the attendant changes in ownership patterns within the industry. The process can be illustrated in reference to the Pentagon's recent emphasis on defense-electronics and the associate trend of corporate acquisitions. During the brief period from 1985 to 1987, for example, there were over 30 defence-related mergers, many of which involved 'high tech' companies with electronics operations.⁵² Most acquisitions were smaller contractors from the Armament Belt but a second round involving much larger acquisitions seems likely to follow. In 1986, Honeywell paid \$1 billion to buy Sperry's aerospace business from Unisys and a year later Loral purchased Goodyear Aerospace for \$640 million, while Lockheed took over Sanders Associates for \$1.2 billion.⁵³ With these new acquisitions, Honeywell, Loral and Lockheed -- as well as other corporations such as Litton, Raytheon, E-Systems and Rohr Industries -- are now in a favourable position to win defence electronics contracts, but this makes them likely candidates for takeover raids by the larger corporations in the Armament Core.⁵⁴ Both Ford and Boeing (who have \$9.4 billion and \$4.2 billion respectively in liquid assets) are reputed to be looking for suitable electronics takeovers. After a decade of accumulation, these two companies and other contenders -- such as General Electric, General Motors, Chrysler, General Dynamics and Rockwell International -- should be able to bid some \$5 billion to acquire Lockheed or other Defense contractors of similar size.⁵⁵ Acquisitions need not increase concentration in the defence industry if they are undertaken by

outside firms, not previously involved in the industry. However, as the Pentagon commonly resists bids from 'outsiders', most defence-related deals are likely to continue being confined to industry insiders. Thus the concentration of the core will be enhanced.

The Armament Core and National Security

Observers often argue that symbiotic relations between the defence industry and government officials increase the 'self confidence' of arms contractors and make them decreasingly accountable. The 'revolving door'-- with hundreds of corporate executives moving to the Pentagon and others migrating in a reverse direction from the armed forces and the Pentagon to corporate positions -- has created an 'old-boys network' of mutual interests.⁵⁶ However, during the 1980s, in the wake of numerous public inquiries into waste and fraud in defence procurement, a stronger expression of concern emerged. It became apparent that even if the government wanted to restrict the leverage exercised by the Armament Core, its power to do so was limited.

In 1985, the Inspector General for the Pentagon, Joseph Sherick, revealed that 45 of the Pentagon's top 100 contractors were currently under investigation for possible criminal activities!⁵⁷ Subsequently, in 1988, the government embarked on 'Operation Ill-Wind' which implicated most of the constituent corporations of the Armament Core in improper conduct. When the investigation began, President Reagan declared that 'waste and fraud by corporate contractors are more than a ripoff of the taxpayer -- They're a

blow to the security of our nation.' Ironically, even when these corporations are convicted of criminal offenses, very little is done about the breaches of national security. Only three weeks after the Pentagon suspended payments to nine prominent Defense contractors under investigation, Secretary of Defense Carlucci resumed normal business relations with them, saying: 'My job is not to punish companies, my job is to protect the national security.'⁵⁸

The problem of inadequate governmental control and corporate misconduct is a direct consequence of both the growing size of large arms contractors and the Pentagon's virtual dependence on their output. An awkward situation prevails without effective sanctions. General Dynamics, for instance, has been under continuous attack for overcharging the government on various defence projects since 1971. In 1984, the company was subject to twelve separate investigations of such overcharging and numerous other criminal allegations.⁵⁹ At no time during the entire period was General Dynamics barred from selected Pentagon contracts for more than a few months. The reason for this permissive behaviour is not hard to grasp -- the company is the sole supplier of Trident nuclear submarines and one of only two manufacturers of 688-attack submarines; its F-16 fighter aircraft is the backbone of the Air Force; the M1 is the main tank for the U.S. Army and Marine Corp; and its Tomahawk cruise missile is a front-runner in the arms race with the Soviet Union.⁶⁰

Many other large contractors benefit from a similar 'vulnerability' of the Department of Defense. The conflicting interpretations of 'national

security' provided by Reagan and Carlucci often result in a partial government paralysis. It was revealed during the 1970s that Lockheed, while already operating under federal loan guarantees after overcharging the Pentagon by at least \$1 billion on the C-5 cargo plane, bribed officials in the Netherlands and Japan to obtain foreign contracts. The only significant consequence of this revelation was the ousting of the company's chairman, Daniel Haughton, and several other executives. Similarly, the only notable outcome of Northrop's foreign bribery scandals and illegal contributions to President Nixon's reelection campaign was the removal of chairman Thomas Jones from the presidency of the company -- and he was reinstated a year later.⁶¹ Clearly scandalous behaviour by company representatives rarely alters rank on the Pentagon's procurement list. The significance of company size is also demonstrated by the asymmetry of treatment accorded to different firms. When a small contractor from the Armament Belt is found guilty of fraud, punishment is commonly a prohibition from military contracts for several years. Often the miscreant suffers bankruptcy. In contrast, with a large contractor from the Armament Core, such punitive actions are perceived as a threat to national security, the government hesitates to accept self-inflicted pain, and avoids most disciplinary action.⁶²

When members of the Armament Core become so large and influential, any attempt to reform the U.S. Department of Defense's procurement process and to check rampant mismanagement is unlikely to succeed. At the outbreak of the current wave of scandals, the Reagan Administration named David Packard, a former Deputy Defense Secretary and chairman of the defence contractor

Hewlett-Packard, to head a new Commission on Defense Management. Packard, who was described as the 'unofficial chieftain' of the military-industrial complex that he was to reform, recommended the creation of a new post-- Defense Under Secretary for Acquisition -- which would centralize all procurement authority.⁶³ Caspar Weinberger, as Secretary of Defense, nominated a former colleague at Bechtel, Richard Godwin, to fill the position but resisted the granting of effective power to the new incumbent.⁶⁴ However, the new under-secretary set up a comprehensive computer system to follow the progress of major systems as being developed by the various armed services -- seemingly, the first attempt to create a database that would support an effective centralized analysis of defence spending in the United States. These initiatives displeased many in the defence arena and Deputy Defence Secretary William Howard Taft IV flatly announced: 'There aren't any czars in Washington, and it was probably misleading to tell Godwin he would be one.' Godwin resigned in September 1987 after only one year at the helm of the surveillance process. Frank Carlucci, Weinberger's successor, replaced Godwin by Robert Costello, who had served for six years as the chief procurement executive for the fifth largest U.S. Defense contractor, General Motors. The status of the computer system evaporated as the earlier policy of consensus and unequal symbiosis returned to replace this modest confrontation with the Armament Core.⁶⁵

Regulation of the activities of the Armament Core is impossible without a comprehensive reappraisal of the U.S. armament policy and the profitability of arms production. In 1985, the Pentagon released a study that indicated military contractors had obtained an annual rate of return of

4.7 per cent on their equity between 1980 and 1982, while comparable durable-goods manufacturers in the civilian market suffered a loss of 3.6 per cent!⁶⁶ Two years later, the General Accounting Office (GAO) responded to this information and other allegations of excessive profits by recommending the establishment of a special Executive Branch office to monitor contractors' earnings. Like their counterparts, the electrical and communication utilities, the giant military contractors were viewed as enjoying a strong oligopolistic (sometimes monopolistic) position in a highly sensitive industry and thus should be subject to a similar system of regulation.⁶⁷ The contractors quickly contended that earnings' regulation would unfairly expose confidential aspects of their civilian operations and interfere with their activities for the Defense Department. The GAO's recommendation was not implemented.

Our findings on the global armaments industry are straightforward. A significant change in structure occurred during the 1980s. First, the emergence of 'military bias' in Europe and Japan created strong competition in world markets but eventually consolidated the international armaments industry and created a common interest to link U.S. producers and their foreign rivals. Second, although the Armament Core in the United States suffered particular international setbacks, its members retained their global pivotal role and fortified their leverage within the United States. Given the accuracy of this assessment, the question to be addressed now is how these developments will affect the future of global military spending. Will domestic military spending in the United States, Europe and Japan be sufficient for their separate armament cores to sustain their past rates of

growth? Are there alternative investment outlets for these military producers? What will be the future role of military exports? We tentatively consider these questions in the following section.

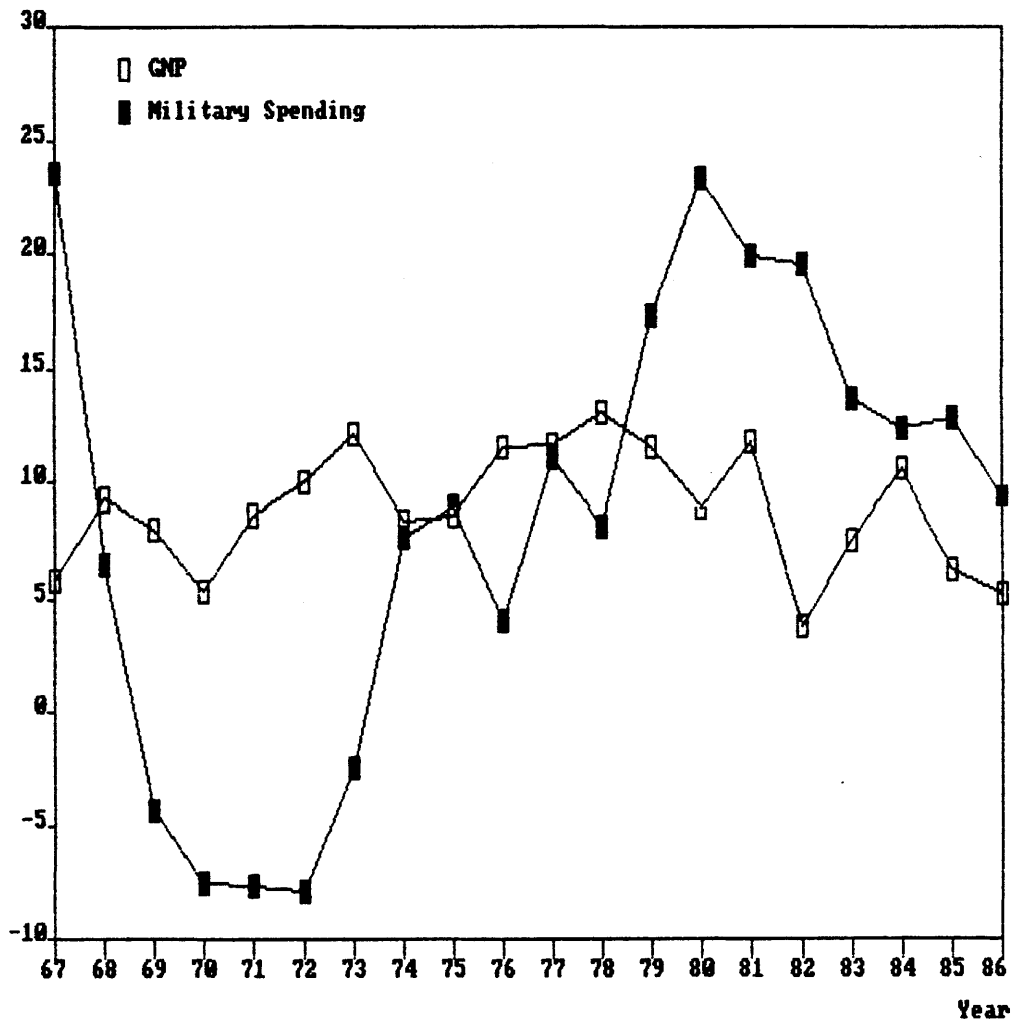
3.4 Arms Exports: Is There an Alternative?

Although defence industries grew rapidly throughout the 1980s, they may face serious difficulties in the 1990s. Their adversity may not stem from either internal conflicts or competitive pressures but rather from a crisis in their ability to find sufficient 'offsets to savings'. The potential problem for U.S. arms corporations is suggested by the graphs of Figure 2, which show the annual growth rates for domestic military spending (excluding employee compensation) and for the GNP of the United States since 1967. Two broad periods can be discerned. For much of the first decade, GNP grew faster than military spending but after 1978, a reversal can be seen with military expenditures expanding faster than the economy as a whole. The entries of Table 1 take up this differential between growth rates and add information on the experience of the Armament Core. We represent this experience by average annual growth rates for nine of the largest Defense contractors -- General Dynamics, General Electric, McDonnell Douglas, Rockwell International, Lockheed, Raytheon, Boeing, United Technologies, and Grumman. [Our exclusion of General Motors, the fifth largest Defense contractor, is explained in Nitzan *et al.* (1989).]

In the first period from 1968 to 1978, military spending grew at an average annual rate of 3.3 per cent, with declines actually occurring in the

Figure 2

ANNUAL RATES OF CHANGE IN U.S. GNP AND MILITARY SPENDING^a
(percent)



SOURCE: Citibase, Citibank Economic Database [Machine-Readable Magnetic Data File, 1986] (New York: Citibank, N.A. 1978), p. X-1-1, Table 1.1, series GNP and p. X-3-3, Table 3.7b, series GGFEN and GGFC.

^a Original figures are in current dollars. Data for military spending Exclude compensation of employees.

Table 1

AVERAGE ANNUAL GROWTH RATE OF SELECTED U.S. INDICATORS^a
(percent)

Period	Military Spending ^b	GNP	Sale Revenues of Armament Nine
1967-78	3.3	9.3	8.8
1979-86	16.0	8.2	12.3

SOURCE: Military spending and GNP data are from *Citibase*, Citibank Economic Database [Machine-Readable Magnetic Data File, 1986] (New York: Citibank, N.A. 1978), p. X-1-1, Table 1.1, series GNP and p. X-3-3, Table 3.7b, series GGFEN and GGFNC.; Sales Revenues data are from Standard & Poor's Compustat Services (1986) *Industrial Compustat*, Compustat II/130-Item Annual Magnetic Tape; 'The Fortune 500', *Fortune*, April 27, 1987.

^a Original data are in current dollars.

^b Excluding compensation of employees.

sub-period 1969-1973. This growth performance consistently lagged behind the corresponding rates for GNP, which averaged 9.3 per cent. Sales revenues of the Armament Core in these years rose by an average rate of 8.8 per cent. As we argued in Rowley *et al.* (1989), the companies of the Armament Core were able to grow faster than domestic military spending because of rapid advances in military exports. In the second period from 1979 to 1986, the situation was markedly altered. While nominal GNP grew by an annual average of 8.2 per cent, the expansionary policies of the Reagan Administration increased military spending by 16 per cent per year. The corporations of the Armament Core expanded much faster than the economy as a whole, with sales growing at an average yearly rate of 12.3 per cent.

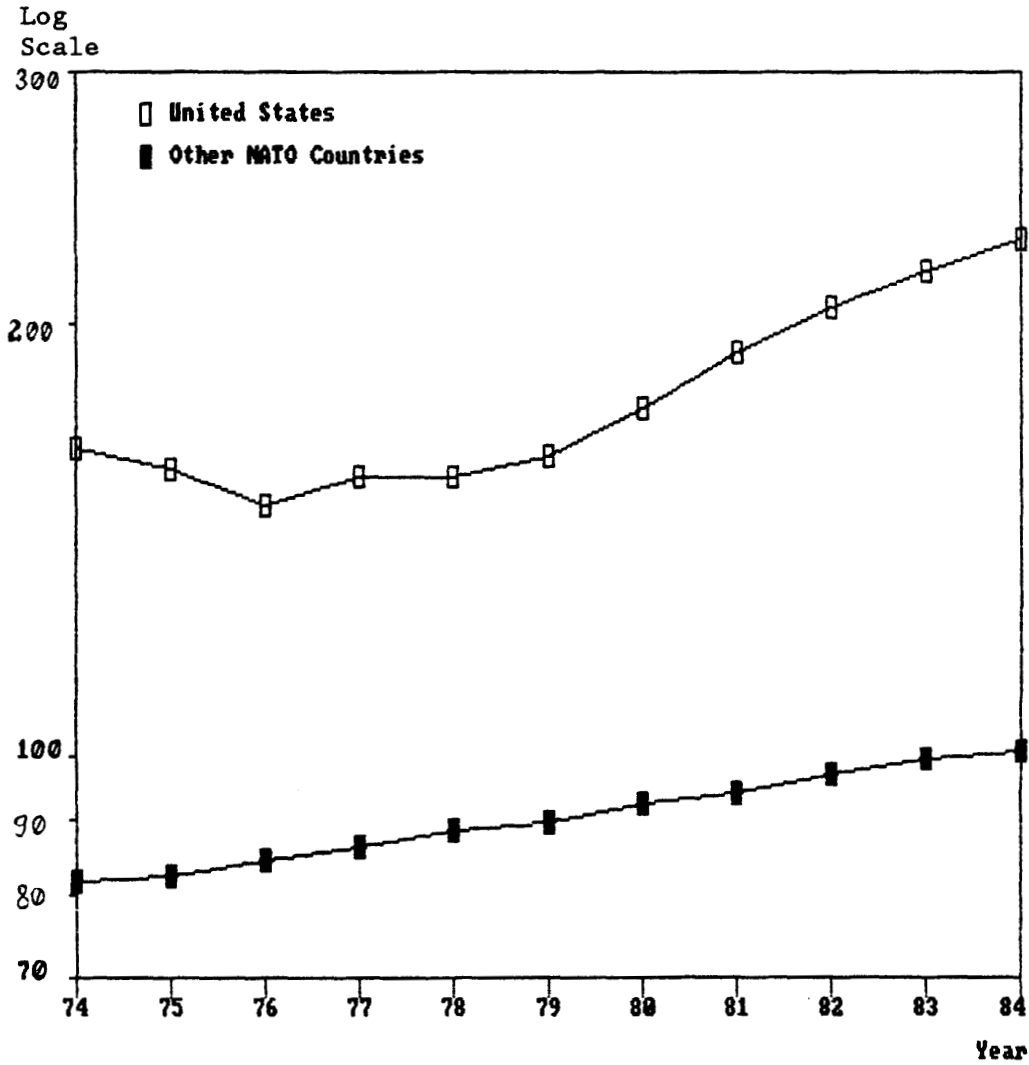
This spectacular growth of the Armament Core's revenues raised profits by an annual rate of 11 per cent.⁶⁸ The large military contractors easily reinvested their higher earnings since defence spending grew by an even faster rate of 16 per cent. The question to be asked, of course, is how long this situation can be maintained? A deceleration of some differentials is evident from Figure 2. While military spending grew faster than GNP, the rates of increase in military spending consistently fell after 1980. The current concern over high governmental deficits in the United States is widely based and so, despite attempts by the Bush Administration to shield the Pentagon from severe budget cuts, restraint seems imminent. Even if the 'largest defence buildup in peace-time' continues, the growth rate of domestic military spending is most likely to continue its decline. Consequently, large Defense contractors face a future in which there may be a severe shortage of offsets to their savings.

Similar problems may afflict military producers in other countries. To clarify potential developments, consider the two graphs of Figure 3, which show constant-dollar levels of military spending in the United States and the aggregate levels of domestic military spending by other NATO governments for the period from 1974 to 1984. In the United States, 'real' military spending rose after 1976 but, from 1981 onwards, the rate of growth diminished. (Note the use of a logarithmic scale for our graphs.) By contrast, constant-dollar military spending in Europe grew at a stable rate throughout the entire 1974-1984 period. However, growth was modest at an average annual rate of 2.1 per cent and persistently lagged behind the rapid expansion of European armament producers. With a continuation of the favourable climate toward disarmament that has been induced by dramatic changes in Soviet Union, actions by governments in NATO countries will not reverse these historical trends. Another arms race seems unlikely to occur under such circumstances. Instead, most governments may be pressed to reduce levels of military spending. All this comes at a time when large corporations exhibit a strong 'military bias' and are increasing 'in need' of such spending. Furthermore, the global consolidation of military industries has stabilized relative market shares and seems likely to preclude substantial redistribution among major corporations. Thus, in the absence of a major world conflict, the large military contractors must look elsewhere for additional investment outlets for their profits.

One potential area for investment might be provided by an extension of the new 'frontier' that links civilian space exploration with commercial

Figure 3

DOMESTIC MILITARY SPENDING BY NATO COUNTRIES
(\$ billion, 1983 prices^a)



SOURCE: U.S. Bureau of the Census, *Statistical Abstract of the United States: 1988*, Table 517, p. 318.

activity. This market, which is already dominated by large Armament-Core corporations, has been growing very rapidly in recent years and the U.S. administration is struggling to reconcile the functioning of the National Aeronautic Space Agency (NASA) with efforts to secure further private business for the large aerospace contractors.⁶⁹ Similar growth is visible in Europe, where the European Space Agency (ESA) has recently embarked on a substantial space programme, which is worth \$34 billion and will extend over 12 years. Most of the programme's resources will be allocated to major European aerospace firms -- such as Aerospatiale and Dassault in France, Daimler Benz in Germany, and Aeritalia in Italy.⁷⁰ However, while civilian space contracts could be significant for individual corporations, they cannot resolve the overall difficulty arising from the stagnation of defence spending. The reason for this view is illustrated in Table 2, where we provide outlay figures for both the U.S. Department of Defense and NASA. The third column of the table shows that defence outlays are presently almost 40 times larger than NASA's expenditures. Hence, in order to compensate for a 1 percentage point of foregone military spending, NASA has to increase its outlays by almost 40 per cent. Unlike military spending which can be often be justified by the imperatives of national defence, large levels for civilian space expenditures are much harder to institutionalize and, therefore, any increases of this order are highly improbable.

Another potential area for new investment by the large military contractors is provided by government megacontracts to establish civilian high-technology systems. In the United States, for instance, such orders currently account for 5 per cent of the joint computer hardware and software

Table 2

FEDERAL BUDGET OUTLAYS

Year	(1) Department of Defence (\$ billion)	(2) NASA (\$ billion)	1:2
1970	84.3	3.8	22.2
1975	94.1	3.3	28.5
1980	146.1	5.0	29.2
1981	170.7	5.5	31.0
1982	198.7	6.2	32.0
1983	223.3	6.9	32.4
1984	240.4	7.1	33.9
1985	264.1	7.3	36.2
1986	285.9	7.4	38.6
1987est	295.1	7.9	37.4

SOURCE: U.S. Bureau of the Census, *Statistical Abstract of the United States: 1988*, Table 476, p. 297.

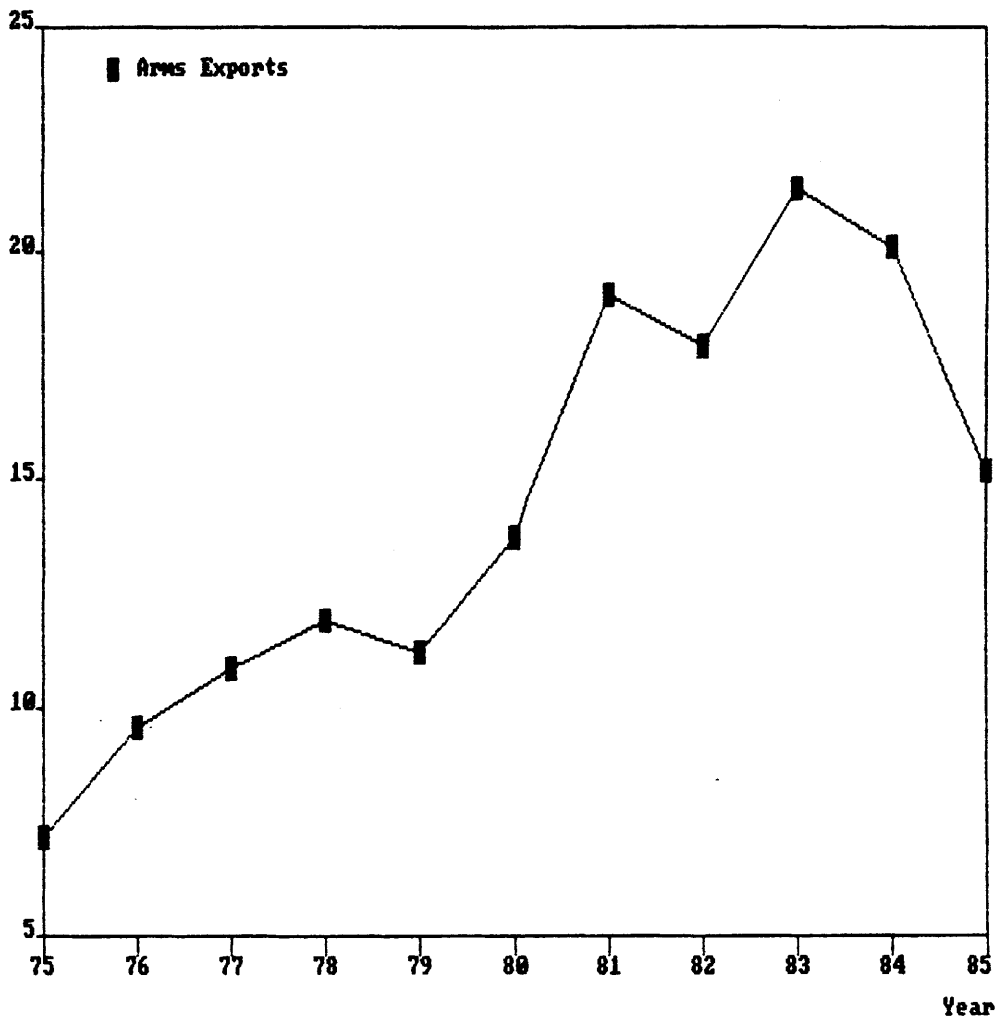
markets.⁷¹ Future U.S. contracts include a government phone system and an air-traffic control system, worth about \$25 billion and \$5.6 billion respectively.⁷² For the winners -- chosen among competitors such as AT&T, Martin Marietta, US Sprint, IBM, and General Motors -- these contracts could be highly important but, again, the overall size of the market is likely to remain quite small relative to that for military products.

A third outlet for savings of Armament-Core companies is provided by financial activities. Between 1984 and 1986, Chrysler Financial Corporation tripled its assets to \$15.9 billion and Ford Motor Credit Corporation doubled its assets to \$31.3 billion but the expansion of both companies is small relative to that of General Motors Acceptance Corporation, which had \$75.4 billion in financial assets by 1986. Chrysler's chairman, Lee Iacocca, accurately summarized this change: 'We are no longer just a car company, [we] are a major financial institution.'⁷³ Even more dedicated military contractors (such as General Electric, General Dynamics, and United Technologies) have large and rapidly-growing financial subsidiaries. A similar conglomerate integration of financial and military operations occurred in Europe and Japan. Looking forward, the present attraction of financial investment will diminish if growth in financial markets is reduced. These markets have grown rapidly throughout the 1980s and a further increase in the pace of growth seems unlikely. Furthermore, recent growth in this area was, at least in part, induced by government borrowing to finance defence-related deficits and so a reduction in military spending may also adversely affect the financial sector.

Civilian space exploration, non-defence governmental megacontracts and financial activity will surely serve to provide some partial compensation for the losses due to stagnation of domestic defence spending within developed capitalist countries. However, the most promising potential for dealing with the anticipated shortfall in the 1990s must seem to arise from further arms exports to third-party countries . Figure 4 illustrates the temporal pattern of aggregate arms exports by the NATO countries from 1975 to 1985. Indeed these exports have stagnated since the early 1980s. The promise of military exports stems precisely from this present stagnation. While civilian space exploration and financial services are already growing rapidly and are unlikely to expand at even faster rates, the current situation of stagnating arms exports has ample room for more growth. As illustrated in Figure 5, the potential for such growth is particularly concentrated in the Middle East and Africa. Since the beginning of the 'Arms Exports Era' in 1972, the combined value of military shipments to these two regions has grown at an average annual rate of 21 per cent -- more than twice the pace of arms exports to the rest of the world, which expanded at an average rate of just 10 per cent. We argue in Rowley *et al.* (1989) that much of this expansion was boosted by the oil crisis. When the oil revenues of Middle Eastern and African producers plunged during the 1980s, arms exports to these regions stagnated. However, despite the current depression in oil prices, the Middle East and Africa still demonstrate a strong appetite for military hardware and they absorb about half of world military transfers. A new oil crisis, if it were to occur, would fuel a wave of rearmament expenditures and substantially increase their military imports. If arms exports into the Middle East and Africa again increase at a yearly

Figure 4

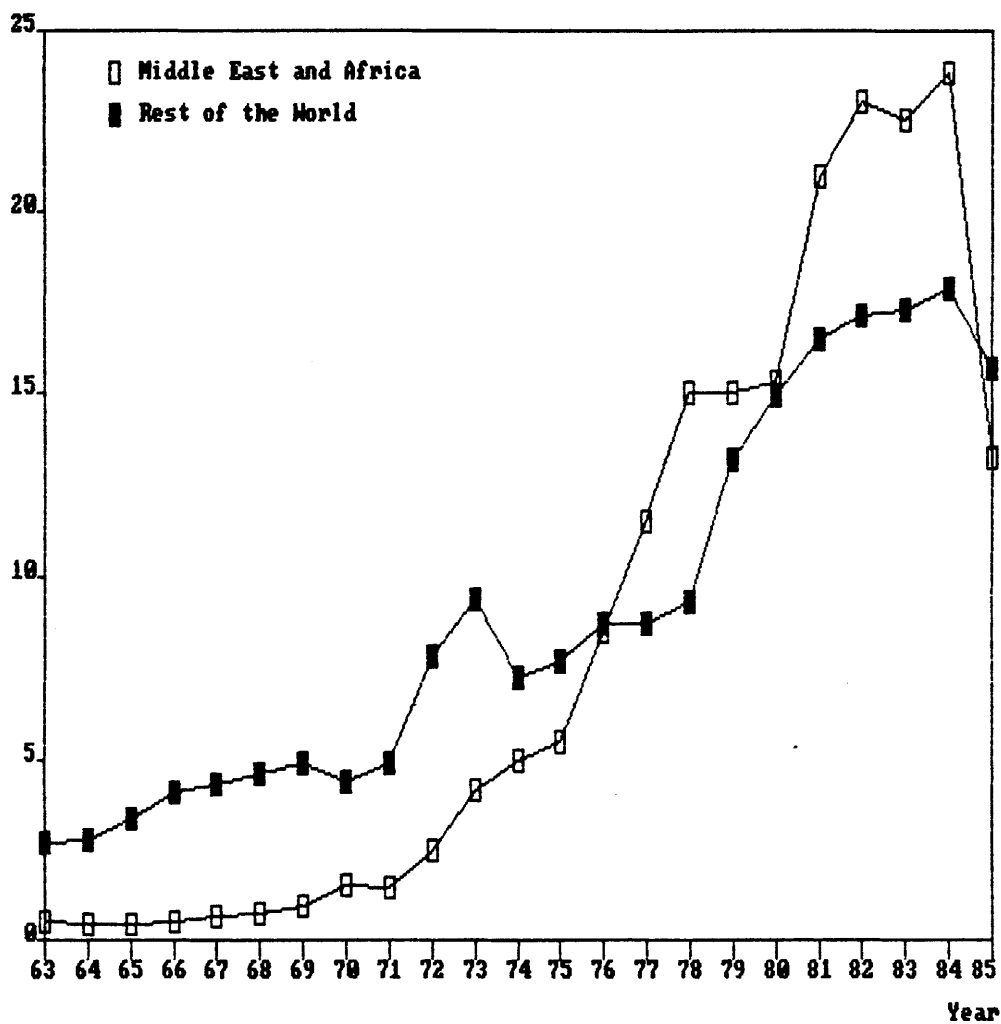
ARMS EXPORTS FROM NATO COUNTRIES
(\$ Billion)



SOURCE: U.S. Bureau of the Census, *Statistical Abstract of the United States: 1988*, Table 520, p. 319.

Figure 5

ARMS IMPORTS BY WORLD AREAS
(\$ billion)



SOURCE: U.S. Arms Controls and Disarmament Agency, *World Military Expenditures and Arms Transfers*, various years.

rate of 20 per cent, they could quickly reach an annual level worth more than \$50 billion to generate ample new orders from the principal arms suppliers.

4. Epilogue

We sought to provide a simple narrative that describes the evolution of armament and oil industries. Use of some convenient terms such as 'the armament core', 'military bias', 'the armadollar-petrodollar coalition' and 'offsets to savings' permitted us to focus on very significant trends in the nature of trading relationships, structural characteristics of the industries, the role of governments and their symbiotic interaction with large corporations. Our account is quite different from the common macroeconomic treatment by many economists because we stress the need to identify the principal economic agents that are active in determining how the markets will evolve. We use anecdotes and individual actions of both companies and governments to advance our story, which removes the simplicity of macroeconomics, but our objective is not to stay mired in the traditional conventions of business chronologies. Instead our concern is with the world economy -- that is, with aggregate developments in the Middle Eastern region, the United States, Europe and elsewhere as they affect the two industries.

Given an acceptance of this methodological compromise, the recent history of the two industries emerges with clarity and meaningful inferences about future developments are possible. The relative power of the principal economic and political actors has to be recognized or most predictions are vacuous -- since we live in an environment being transformed by a rush toward increased structural concentration for the control of economic activity. This global process is especially evident in the markets for oil

and armaments. Thus the alternative macroeconomic perspective offers only sterility and obfuscation in the context that we have investigated.

Notes

1. See Koepp (1986a, b).
2. These numbers are collected from the *Statistical Yearbook* of the United Nations' Department of International, Economic and Social Affairs, Statistical Office, 1983/4, p. 903; *Citibase*, the economic database of Citibank, 1986; 'The Fortune 500' of *Fortune* for April 27, 1987, and April 25, 1988; and 'The International 500' of *Fortune*, various years.
3. See 'Is Saudi Oil Leaking Out of OPEC?' in *Business Week* for September 12, 1983, p. 57.
4. See Symonds *et al.* (1988) and Bluestone *et al.* (1988).
5. See Miller and Bluestone (1988).
6. See 'Sheiks Who Wear the Star' in *Time* for July 27, 1988, p. 57.
7. See Bluestone *et al.* (1988).
8. Tracing the financing of the Iraq-Iran War is a complicated task since both countries received substantial financial and material assistance from other sources. The government of Khomeini was supported by both Syria and Libya, while Iraq allegedly received \$35 billion in cash and replacement oil from Saudi Arabia and other Gulf states. See Schiff (1985).
9. According to estimates of the U.S. Arms Control and Disarmament Agency, which generally seem to be unduly conservative, the cost of annual shipments of arms to the Middle East surpassed \$15 billion, equivalent to about 45 per cent of the value of world arms exports.
10. The recent decline in the economic activities of U.S.-based firms in the Middle East extends beyond the market for armaments. Competitors from Europe, Japan and Korea gained ground in civilian areas, including high-technology markets such as telecommunications. U.S. producers usually attribute this economic slippage to favourable financial terms available to their main competitors, cheaper foreign labour costs, and the restraints of the Foreign Corrupt Practices Act (which prohibits U.S. companies from paying agent fees and from bribery). See 'Why the U.S. is Slipping in the Mideast' in *Business Week* for September 24, 1984.
11. Estimates by SIPRI, which differ from those published by the U.S. Arms Control and Disarmament Agency, suggest that Iraq acquired some \$40 billion's worth of arms during the period from 1980 to 1986, while Iran purchased about \$30 billion's worth. The U.S. government covertly supplied arms to both sides of the conflict and, in 1987, agreed to supply Iraq with 'civilian' equipment, including transport planes and helicopters. However, the overall stake of U.S.-based companies in direct supplies of armaments remained small.

12. The prime suppliers of armaments for the war were based in France, the United Kingdom, West Germany, Italy, South Africa, the Soviet Union, China, Vietnam, Israel and Brazil. Iraq even supplied Iran -- after 150 Iranian M-48 tanks (and cannon shells made by Chrysler) were captured in 1982, the Iraqi forces were unable to operate them so they were sold and eventually returned to Iranian hands in 1986!

13. The ambiguity of the administration's statements and actions is clearly expressed in contemporary documents and proposals. Lewis (1988), for example, reports an address by Secretary of State Shultz to the General Assembly of the United Nations in which Shultz declared that 'developing countries must help reduce the international tension and ease the arms race.' This statement was made only one month after the Reagan Administration proposed to increase U.S. arms exports by \$3.3 to a level exceeding \$15 billion in 1988 -- with proposed shipments worth \$3.6 billion to Israel, \$2.7 billion to Egypt, \$950 million to Saudi Arabian, and \$1.3 billion to other Middle Eastern countries. See 'Arms Sale Just a Proposal U.S. Says' in *The Montreal Gazette* of May 3, 1988, p. A12.

14. In 1985, the U.S. Congress refused to approve the sale to Saudi Arabia of 40 advanced F-15 aircraft (manufactured by McDonnell Douglas) and, in the following year, blocked the sale of 800 Stinger missiles (produced by General Dynamics). In 1988, the U.S. Senate voted to deny a Kuwaiti request for Maverick missiles and also forbade the sale of Stinger missiles to Oman. See Serrill (1988) and Pear (1988).

15. See Maremont, Comes, Peterson and Melamed (1988).

16. Our data are collected from *Mergers and Acquisitions, Almanac and Index* for the years from 1982 to 1986.

17. Acquisitions by non-oil companies included, for example, the takeover of Conoco by Du Pont and the movement of Marathon Oil to the ownership of USX (then U.S. Steel).

18. These structural factors which operate toward further consolidation of the oil industry do not mean, however, that the petroleum giants are compelled into such concentration drive against their will. The energy sector is a 'key industry' which crucially affects the course of the world economy and officials of the large oil companies need not read Veblen (1923) to grasp the economic leverage provided by this pivotal position. Despite current difficulties, officials like Exxon's chairman and chief executive officer, Lawrence G. Rawl, remain highly optimistic: 'Energy is the biggest business in the world ... I mean really big. It is inconceivable to me that 20 or 50 years out we still won't need at least as much energy ... Energy is here to stay.' See Byrne (1988).

19. See Butler (1989).

20. See Ingersoll (1985).

21. In 1984, before its merger with Daimler Benz, Messerschmitt-Bolkow-Blohm paid \$2.5 billion to purchase another defence contractor, Krauss-Meffei, which came from the dismembering of the Friedrich Flick group--previously the largest privately-owned holding company in Germany. See 'Forging a Deal to Create a New Giant in Defense' in *Business Week* of August 20, 1984. Also see Graff (1988).
22. See Ingersoll (1987).
23. See Templeman *et al.* (1988).
24. The official explanation of the German government for its support suggested that the consequences of such diversification would help to close the 'technological gap' with the United States and would permit a sensible rationalization of the aerospace sector. The net effect was to consolidate a military-industrial-financial combine that may become a 'government within government'. Again see Ingersoll (1987).
25. See 'Upping the Ante on Defense' in *Time* for September 30, 1985, and the coverage provided by *The Financial Post* for September 27, 1986.
26. The Agnelli family spent \$1 billion to increase its share of Fiat from 32 per cent to 40 per cent, while the remaining 7 per cent acquired from Libya (which was underwritten by Germany's Deutsche Bank and Italy's Mediobanca for \$2 billion) was sold to institutional investors. See 'Dropping Out' in *Time* for October 6, 1986, p. 68, and Symonds (1986).
27. During 1984 and 1985, Fiat's contracts with the Pentagon amounted to \$23.6 million. See Pedrick (1986).
28. Fiat's actions reduced the share of its revenue accruing from automotive production to 36 per cent in 1986. The company entered new areas including the production of aircraft, trains, lasers and robots as well as activities involving finance, insurance and telecommunications. See Pedrick (1987).
29. See Lacayo (1985).
30. See Sutton (1985).
31. See DeGeorge (1987).
32. See Maremont and Schares (1988).
33. See Maremont, Comes, Peterson and Melamed (1988).
34. See Rapoport (1988).
35. Philip C. Norwine, as reported in 'Alliances Aimed at Selling U.S. Helicopters' in *Business Week* for September 9, 1984.

36. See Kapstein and Miller (1987).
37. The General Electric Company (G.E.C.) of the United Kingdom should not be confused with the U.S.-based General Electric. The two companies are unrelated.
38. See Maremont and Schares (1988).
39. See Maremont (1989).
40. See Norman (1989) and Quint (1989).
41. European governments, of course, do not welcome U.S. takeovers affecting their defence sectors. Legislative barriers to limit intrusions have been common. For example, when British Aerospace and Rolls-Royce were privatized, their articles of association required foreign ownership to be limited to just 15 per cent. These obstacles will reduce the momentum for some aspects of the international wave of mergers and acquisitions but are unlikely to end the process of concentration. See 'Foreigners Buy Too Much British Aerospace Equity' in *The Financial Post* for March 13, 1989, p. 25.
42. See 'Upping the Ante on Defense' in *Time* for September 30, 1985.
43. See Usui and Griffiths (1986).
44. On this conflict, see 'Making Amends' in *Time* for July 13, 1987, and Dryden et al. (1987). In addition to concessions on the FSX, the Japanese offered to reduce the embarrassment of the U.S. government by the purchase of several Aegis air-defence systems, each costing \$500 million. See also Dryden and Armstrong (1988) and Sanger (1989) for later comments.
45. See Armstrong (1988).
46. See Sanger (1989).
47. See Dryden and Gross (1988), Sanger (1989) and Rogers (1989).
48. See Toy et al. (1988).
49. See Griffiths (1987b) and Church (1988).
50. See Toy (1987a).
51. The U.S. defence industry has been plagued by a host of criminal scandals but the scale of recent contracts probably encouraged additional incidence of scandalous behaviour. In 1988 alone, allegations were made against as many as twenty Defense contractors in what has been termed 'the biggest inquiry into white-collar crime in history'. See Toy et al. (1988).
52. See 'Pickens Picks: A Boone for Investors?' in *Fortune* for September 14, 1987, pp. 126 ff.

53. See Pitzer (1988) and 'Pickens Picks ...' (*ibid.*)
54. See Toy (1987a).
55. See Toy (1987b) and Marcial (1989).
56. See the accounts by Reed (1975) and Adams (1982).
57. See Payne (1985).
58. See Bock (1988).
59. See Payne (1984) and Ellis *et al.* (1985).
60. Our summary is based on *Moody's Industrial Manual*, General Dynamics Corporation, 1986, Vol. 1, pp. 366-74.
61. See Ellis *et al.* (1985).
62. The consequences of government hesitations and resulting policy ambivalence were illustrated when in 1987 the Justice Department dropped its fraud case against General Dynamics and its former executive James M. Beggs. Quoting Winston Churchill, Beggs confirmed that 'nothing in life is so exhilarating as to be shot at without result.' See *Fortune*, for July 20, 1987.
63. See Fitzgerald (1989) and Griffiths (1989).
64. See Wildstorm (1987).
65. When he assumed his new government position, Costello explained his disapproval of Godwin's 'Big-Brother style' computer by arguing that his was a 'policy job' quite removed from 'nitty-gritty' details. See Van Voorst (1988).
66. See 'A Delicate Pentagon Probe' in *Time* of August 19, 1985.
67. See Griffiths (1987a).
68. Our calculations use data sources that are listed in Table 1. For detailed data see Bichler *et al.* (1989), Table 2.
69. In 1988, for example, the Congress forced NASA to guarantee \$700 million in leases on a future space platform to be built by Space Industries, a consortium of Westinghouse and Boeing. NASA considered the platform as superfluous capacity in view of its own plan for a \$20 billion space station. Nevertheless, officials in the Reagan Administration applauded the decree as a valuable means of privatization of space-related activities. See Payne (1988).
70. See Peterson (1987).

71. See Seghers and Lewis (1987).

72. See 'Anyone Want to Bid on Revamping the Bidding Process' in *Business Week* of August 29, 1988, p. 33.

73. See 'Auto Bankers' in *Time* of May 26, 1986.

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