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## **Bringing capital accumulation back in: the Weapondollar–Petrodollar Coalition— military contractors, oil companies and Middle East ‘energy conflicts’**

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### **ABSTRACT**

This paper offers an alternative approach to the repeated occurrence of Middle East ‘energy conflicts’. Our analysis centres around the process of *differential capital accumulation*, emphasizing the quest to exceed the ‘normal rate of return’ and to expand one’s share in the overall flow of profit. With the evolution of modern capitalism, the dictates of differential accumulation become an ever stronger unifying force, drawing both state managers and corporate executives into increasingly inextricable power-driven alliances.

The Middle East drama of oil and arms since the 1970s has been greatly affected by this process. On the one hand, rising nationalism and intensified industry competition during the 1950s and 1960s forced the major oil companies toward a greater cooperation with the OPEC countries. The success of this alliance was contingent on the new atmosphere of ‘scarcity’ and oil crisis, which was in turn dependent on the progressive militarization of the Middle East. On the other side of the oil–arms equation stood the large US and European-based military contractors which, faced with heightened global competition in civilian markets and limited defence contracts at home, increased their reliance on arms exports to oil-rich countries.

Over the past quarter century, the progressive *politicization* of the oil business, together with the growing *commercialization* of arms transfers helped shape an uneasy ‘Weapondollar–Petrodollar Coalition’ between the principal military contractors and petroleum companies. As their environment became intertwined with the broader political realignment of OPEC and the industrial countries, the differential profits of these companies grew evermore dependent on the precarious interaction between rising oil prices and expanding arms exports emanating from successive Middle East ‘energy conflicts’. At the same time, these companies were not passive bystanders. This is suggested firstly by the very close correlation existing between their arms deliveries to the Middle East and the region’s

oil revenues and, secondly, by the fact that every single 'energy conflict' since the 1967 Arab-Israeli War could have been predicted solely by adverse setbacks to the differential profit performance of the large oil companies!

### KEYWORDS

Capital accumulation; oil; arms exports; multinational corporations; Middle East conflicts; US foreign policy.

## 1 INTRODUCTION

Since the beginning of the present century, the economic significance of the Middle East has primarily stemmed from the region's oil exports. From the late 1960s onward, such significance has been shared with a newer flow of arms imports. As oil crises became tied to armed conflicts, there developed a growing and increasingly synchronized movement of *petrodollars* (revenues from petroleum exports that flow into the Middle East), and *weapondollars* (revenues from arms imports which flow out of the region). Unfortunately, this connection between oil and weapons remains a serious threat. The end of the Cold War created new pressures to increase arms exports, and the continued race for natural resources means that a new oil crisis is not at all unlikely. Under certain circumstances, the convergence of these two trends could again spark a renewed conflict in the Middle East, with potentially devastating regional consequences and adverse global implications.

Most studies dealing with the link between oil and arms in the Middle East have been based on a 'statist' frame of reference. The basic unit of analysis here is the nation-state, whose actions are dominated by central decision makers seeking to achieve broad *macroeconomic* or *macropolitical* goals. Economists have often tended to approach the issue as part of an international equilibrium between raw materials and industrial commodities, so their attention has been naturally focused on the feasibility of 'recycling' between oil and arms. Chan (1980), for example, emphasized the balance-of-payment problems arising from the oil crises and examined the efforts of both consuming and producing countries to 'resolve' these imbalances via arms trade. A similar analysis was offered by Snider (1984), who sought to find whether the governments of the United States, Britain, France, West Germany and Italy were selling weapons to offset the cost of oil imports. The conclusions of these and similar studies (such as Ray, 1976, and Pfaltzgraff, 1978) are usually denominated in *aggregate* terms: the main emphasis is on *national* goals - for example, economic growth and price stability for the industrial countries, and a bolstered 'self-image' and internal stability for the oil-exporting nations.

This universal language is consistent with the more macropolitical literature which emphasizes the 'realist', or 'state-centred' perspective to the link between raw materials and international conflict. The political anthropology underlying these writings portrays a menacing Hobbesian environment with each nation seeking to endure in a largely anarchic world. Survival and security in this context hinge on economic prosperity, national preponderance and military prowess, and these are critically dependent on the differential access to raw materials and advanced technology. According to the more 'materialistic' strand of this literature (such as Nordlinger, 1981, and Waltz, 1979, for instance), this dependency serves to explain why central decision makers, particularly in the large developed countries, are so sensitive to any small realignment in the international allocation of strategic raw materials, weapons and critical technologies. And thus, as the international arena grows increasingly complicated, the effective control of these key commodities and capabilities must inevitably shift away from the large private firms and into the hands of state officials, whose foreign policies become increasingly 'autonomous' from the pressures exerted by the underlying 'societal groups'.

Other macropolitical approaches tend to emphasize the 'idealistic' aspects of foreign policy. For instance, in his 1978 study, *Defending the National Interest: Raw Materials Investments and US Foreign Policy*, Krasner claimed that, following the redistribution of international power after the Second World War, US raw-material policy has shifted from a material to an *ideological* footing focused mainly on containing communism and promoting free markets. A somewhat more subtle interpretation was offered by Lipschutz (1989), who argued that nations tend to clash over key raw materials because these provide the crucial link between the material interests of economic and military capabilities on the one hand, and the ideal interests of influencing markets and states on the other.

The main shortcoming of the state-centred approaches stems from their lack of clear empirical criteria for conjectures and refutation. Krasner, for instance, contended that in order to test the statist view against its 'societal-based' counterparts, it is sufficient to show that state officials maintain a *consistent (time-invariant) ordering of goals*. Yet, why should such consistency preclude liberal or Marxist explanations? Indeed, Krasner himself admitted that there is no obvious operational means of differentiating the statist view from the structuralist approach of the Marxian literature.<sup>1</sup> Furthermore, the significance assigned to *officially* expressed preferences and goals is not entirely convincing, particularly since these often stand in sharp contrast to the *consequences* of attendant policies. For instance, based on his survey of US oil policies since the 1940s, Krasner argued that in order to contain communism,

American central decision makers were willing to sacrifice their lesser goals of security of supplies and greater market competition. In his opinion, this was a 'non-logical' policy borne from the 'misconceptions' of state officials, but that, of course, leaves the door open to alternative explanations. And indeed, starting from a Marxist perspective, Bromley (1991) concluded that, contrary to the realist and liberal interpretations, US oil policies were in fact both 'instrumentalists' and 'functionalist' in nature – that is, supportive of the large oil companies and the capitalist order as a whole.

The international flows of oil and arms have been examined also from the more *disaggragate* perspective of the underlying industries, but here, too, there is a considerable lack of unanimity, even on fairly substantive issues. Writing from an implicit 'instrumentalist' view, Blair (1976) and Engler (1977), for example, contend that, intentionally or not, the energy policies of parent governments (particularly the United States, Great Britain and the Netherlands) have had the effect of assisting the international oligopoly of world oil. A different view is expressed by Turner (1983) and Yergin (1991), who, in line with a more 'statist' perspective, argue that there was a gradual but systematic erosion in the primacy of international oil companies and that, since the 1970s, these firms were in fact acting as 'agents', or intermediaries between their host and parent governments. Studies on the international arms trade have been equally controversial. According to Sampson (1977), the absence of any international consensus on disarmament creates a void, which is then filled by the persistent sales effort of the large weapon makers. Arms exports become significant particularly in peace time, which may partly explain why they started to grow in the early 1970s with the ending of US involvement in Vietnam (see also Brzoska and Ohlson, 1987; Brzoska and Lock, 1992; and Ferrari *et al.*, 1987). This claim seems consistent with the 'underconsumption' approach forwarded by neo-Marxist writers such as Magdoff (1969), O'Connor (1973) and Griffin *et al.* (1982). According to Krause (1992), however, the impact of private producers on arms sales policies should not be overstated, at least not in the case of the United States where the volume of arms exports is small relative to domestic military procurement and the contractors' civilian sales.

### **International political economy – bringing capital accumulation back in**

As we see it, the existing literature is besieged by two key problems. First, there is no clear theory accounting for the political realignment of the large international oil and armament corporations in the Middle East. Second, there is a disturbing lack of systematic empirical data,

particularly those pertaining to the activities and performance of the leading corporations. For example, we were unable to find anywhere in the recent literature long-term time series for the profits of the large armament and oil firms; but, then, how could one discriminate between the 'state-autonomy' and 'instrumentalist' views when even the most basic facts about corporate performance remain obscure? Unfortunately, the source of these problems extends beyond the particular subject of armament, oil and Middle East conflicts. Here, as elsewhere in the modern literature on the international political economy, we find that little or no attention is paid to the issue which matters most – *the process of capital accumulation*.

Our dissatisfaction with existing approaches has led us to try and develop an alternative starting point, a new historically dynamic perspective which may help *bring accumulation back in*. The issue of accumulation goes to the core of international political economy and we feel that the interaction of armament and oil in the Middle East could not be fully understood without it. Moreover, given the global significance of oil and arms, tying Middle East conflicts and oil crises with the process of capital accumulation may provide insight into other aspects of international political economy. For example, many of today's commonly-used terms – such as 'monopoly capitalism', 'finance capital', 'imperialism' and 'corporatism' – were debated and formulated at the turn of the century, with the rise of 'big business' and 'big governments'. The backdrop of these controversies and many of their case studies were drawn from or related to the emergence of the oil, finance and heavy military industries which now operate in the Middle East and which constitute the focus of our study. Furthermore, contemporary debates on issues like 'state and capital', the 'governability crisis' and the 'American U-Turn', stem from the accumulation crisis of the largest corporations and the ongoing international realignment of which they are a central component.

In focusing on the process of accumulation, our study of the arms–oil nexus and the recent history of Middle East 'energy conflicts' is recast in two main ways. First, our basic unit of analysis is not the 'state', but the *multinational corporation*. Note that this choice says nothing on the relative significance of the 'firm' *vis à vis* the 'state'. As we shall argue below, the modern system of business enterprise integrates private ownership as well as public office and state institutions as indispensable aspects of accumulation. However, the *ideal* appearance of accumulation (as distinguished from its social ramifications) reveals itself through the corporation's financial reports, and so if we are to say something about it we must start from the legal corporate entity.<sup>2</sup> Second, instead of focusing on the clash of 'national interests', we argue that the international political economy is also (and perhaps more so) driven by

*differential corporate performance*. Again, this is not meant to exclude the interaction among states or between states and firms. To the contrary, we see these interactions as lying at the heart of modern capitalism, only that the criteria which guide them are now increasingly denominated in terms of differential capital accumulation.

### From tangible to pecuniary accumulation<sup>3</sup>

What is capital and what is the meaning of capital accumulation? Surprising as it may sound, the answer to this question – even after several centuries of rapid capitalist expansion – is still anything but clear. Economists tend to deal with both in *physical, material* terms. Capital is generally seen as manmade means of production, ‘capital goods’ which participate – together with labour, land and technology – in the production process. And with this definition for capital, accumulation is then naturally taken to denote the material amassment of capital goods. Although there are some variations in style and emphasis, the focus on the *tangible* essence of capital is all pervasive. Mainstream economists, such as Alfred Marshall, suggest that we look at capital as a ‘store of *things*’ which ‘aid or support labour in production, . . . [and] without which production could not be carried on with equal efficiency, but which are not free gifts of nature’ (1920: 648–9, emphasis added). Similarly, summarizing the various ways in which economists have tried to define capital, Joseph Schumpeter concludes that, in its essence, ‘capital consisted of *goods*’, and specifically, of ‘produced means of production’ (1954: 632, 633, emphasis added). The Marxists offer a fundamentally different view, though their understanding, too, remains captured within the material framework of production and consumption. For them, capital is not a physical thing, but rather a social relationship embedded in physical articles. Their *measurement* of capital and accumulation, however, is denominated in terms of ‘dead labour’ – that is, in physical or caloric units of human effort (or socially necessary labour time) spent in producing capital goods and in reproducing the labour force (Catephores, 1989: 87–106; Sweezy, 1942: ch. 7; Wright, 1977: 200).

And so, despite the otherwise marked contrast between them, mainstream and Marxian economics do seem to share at least one fundamental principle in common: they both view accumulation through *technological* spectacles. In the first system, capital is said to expand because of its own productivity, whereas in the later this happens thanks to the productivity of labour – though regardless of this difference (rooted undoubtedly in their opposing ideological dispositions), in each case the mechanics of accumulation are ultimately a matter of *production*. Indeed, in this sense, the production function of neo-classical

economics, Marx's value equation and even Sraffa's input-output scheme stand on the same footing: they are all denominated in 'real terms'.

However, there were always some lingering doubts about the productive underpinning of capital. Marx, for example, felt compelled to place the productivity of capitalism at the core his theory; yet, in a prophetic passage foreseeing the eventual demise of his own labour theory of value, he predicted that the growing integration of industrial processes and knowledge will eventually render meaningless any specific link between value and labour time (cited in Marcuse, 1964: 35–6). The same principle, expressed somewhat differently and in a much more technical way, also underlay the Cambridge Controversy of Capital which raged after Sraffa (1960) demonstrated that the quantity of capital was a fiction, and that productive contributions could not be used to explain prices and distribution. The Cambridge Controversy, however, raised more questions than it answered. Indeed, if it were not production, what was it that determined the value of capital and its pace of accumulation?

Interestingly, the answer to this question was already suggested much earlier by Thorstein Veblen (1904, 1923). Criticizing the prevailing consensus of his time, Veblen pointed out that, unlike economists, businessmen tended to think about capital and accumulation in *pecuniary*, not material terms. For the modern investor – the owner of corporate stocks – capital does not denote machines, structures or raw materials, and accumulation has little to do with the material augmentation of such articles. Instead, for the investor, capital simply means the monetary value of his securities and accumulation is nothing more than the temporal increase in that value. The value of capital is of course not an independent entity, but rather a capitalization of anticipated business earnings, and its pace of accumulation is ultimately dependent on the expected growth of such earnings. Contrary to the economist's convention, however, Veblen argued that the source of these earnings was *only partly and often not at all* related to the underlying productivity of the owned machines and hired workers.

### Means and ends: differential accumulation as a 'power index'

What severed the link between profits and productivity? The principal cause, according to Veblen, was the growing separation between 'industry' and 'business', or between productive activity and absentee ownership. As production grew into an evermore complex, interdependent and coordinated *communal* process – the distribution of income, and hence the value of capitalized earnings, were increasingly determined by the antagonism of *power*. Continuing Veblen, we can argue that the essence of such power lies in the ability of owners



to put specific technological, institutional, legal and political *barriers* on the *common* use of resources and know-how. In this sense, the value of capital reflects a capitalization not of *productive contributions*, but of *restrictive limitations*. The nature of these limitations has undergone continuous change since the emergence of capitalism, and particularly since the rise of 'big business' and 'big government' in the late nineteenth century. In the present century, the power determinants of profits and accumulation have shifted further into the political realm of governments, with factors like taxation, tariffs, subsidies and patent laws now being increasingly augmented by international institutions such as trade zones, regional investment agreements and global, government-backed corporate alliances.

Power, however, is not only the means of accumulation, but also its most fundamental aim. In saying so, our basic point of departure is that large-scale business enterprise is driven by the same principal force which seems to have animated all previous civilizations – namely, the quest for control over nature and people.<sup>4</sup> In other words, much like the conquest of land or the capturing of slaves in earlier times, the modern process of capital accumulation is not only a consequence of power but also its principal manifestation. This emphasis serves to explain why, when we come to the measurement of power, standard economic indices such as 'production', 'employment', 'sales', or 'prices' are not very useful. The reason is that these categories are typically conceived from the point of view of hedonic utilitarianism which prevailed in early capitalism: their ultimate purpose is to tell us something about 'well-being'. From the power perspective of mature capitalism, however, such indices are rarely illuminating since the quest for domination and control has little to do with utility and well-being. And indeed, the typical large firm displays no intrinsic interest in producing more rather than less, or in making its product cheap rather than expensive. Buying and selling, hiring and firing, inflating or dumping are of course highly significant, but rarely as ends in themselves; instead, these are merely the means by which the corporation seeks to achieve a higher goal – that of earning *profits*.<sup>5</sup>

The primacy of the profit motive is of course well known, but its interpretation remains problematic. The difficulty arises when mainstream economic theory proceeds to assume – mistakenly in our view – that the quest for profit could also be denominated in utilitarian, hedonic terms. To elucidate the problem, consider the standard practice of computing 'real profit' by dividing the nominal profit by the consumer price index. The idea is to obtain a measure for the 'purchasing power of profit', but then there arises the question of whether profits are indeed earmarked for current or eventual consumption. In the case of small businesses, the answer may be positive, particularly for the self-

employed. But when we look at the large modern firm, that no longer holds true. The notion that the global business behaviour of Exxon, Mitsubishi, Daimler-Benz, or Ford is ultimately geared toward maximizing the 'consumption power' of their owners simply sounds irrelevant. Large-scale business enterprise is of course obsessed with profitability, but for reasons which are largely devoid of any hedonic considerations.<sup>6</sup>

But then if it is not consumption, what is it that animates the owners and managers of the large firms? What other than hedonic pleasure can drive the relentless pursuit of profit? The answer begins by noting that, in the new order of large-scale business enterprise, the ultimate goal is not tangible, but *nominal* gain. The insight of Veblen is again illuminating. 'In all these civilized countries where the price system has gone into effect', he writes, 'men count their wealth in money-values. So much so that by settled habit . . . men have come to the conviction that *money-values are more real and substantial than any of the material facts in this transitory world . . .* and when a person has sold his goods, and so becomes in effect a creditor by that much, he is said to have "realized" his wealth, or to have "realized" his holdings.' Paradoxically – though not surprisingly – '[i]n the business world the price of things is a more substantial fact than the things themselves' (1923: 88–9, emphases added).

This historical move from the tangible to the nominal is rooted in the *differential* culture of business enterprise. For the large firms, success or failure are measured not in terms of increase or decrease in the quantity of commodities their profit can buy, but rather *in relation to what other firms have achieved*. For example, a 20 per cent decline in the net profit of Philip Morris may not be considered disconcerting if the drop came in the wake of an overall recession. In contrast, however, a 5 per cent rise in earnings would be interpreted as evidence of a serious strategic failure if the Fortune 500 average rose by 10 per cent and competitors such as Nestlé or RJR Nabisco recorded gains as high as 20 per cent. Indeed, contrary to customary textbook notions, it appears that modern corporations are preoccupied not with 'maximizing' their profit, but rather with 'beating the average'. Unlike the former which is forever unobservable, the latter appears to be everywhere. References to the 'average' or 'normal' pervade the economic and business literature – from the analysis of stock performance, through the stacking of country growth rates and risk premia, to the ranking of corporate profitability – and it is this differential habit of thinking which more than anything else animates the owners and managers of the large corporations.

Based on these considerations, we can argue that the guiding principle of big business is the quest for *differential pecuniary accumulation*. Specifically, this means (1) that the ultimate goal of large-scale business enterprise is the ongoing increase in profit, (2) that businessmen think

about such profit solely in nominal terms, and (3) that they evaluate their success or failure on a purely differential scale – that is, relative to other firms. The emphasis on differential pecuniary accumulation has far-reaching methodological implications. Note that in trying to beat the average rate of profit, the corporation is effectively seeking to control a *larger share of the societal surplus*. In other words, *differential profits and redistribution are two sides of the same thing*. The crucial point here is that the quest for redistribution is not a means toward some hedonic end, but rather the *final goal of business enterprise*. Redistribution, then, is sought for its own sake – that is, for the sake of *power*.

The upshot of all of this is that, in the context of business enterprise, power is in fact no less quantifiable than well-being. While the latter can be approximated by the various quantities of production and consumption, the former is incarnated in the magnitudes of differential profit and in the patterns of its distribution. In this paper we focus on two such 'power indicators'. One is the *differential rate of return*, defined as the ratio between the rate of return for a given firm or group of firms on the one hand, and the average rate of return for a wider reference group on the other. For example, the differential rate of return for a cluster of large non-government oil companies could be approximated by taking the ratio between their own rate of profit and the average rate of profit in the Fortune 500 group of companies. The result, measured as a pure number, could be seen as an index of 'disruptive success' – an indication for 'how well' this group of large oil companies is doing within the disruptive sphere of global business and international politics. A value greater than unity for the index indicates that the oil group's restrictive tactics (or the failure of other firms to successfully implement such tactics) have helped it outperform the 'average' to its own distributive advantage; by extension, a value below unity implies a disappointing outcome and a redistributive loss.

Another related index is the *distribution of profit*, measured as the share of profit of a given universe of firms obtained by a subset of that universe. This index could provide some indication for the evolution of relative corporate power. For example, a long-term increase in the share of Fortune 500 profit appropriated by a subset of leading defense contractors may suggest a parallel rise in the political-economic leverage of military companies *vis-à-vis* their civilian counterparts. A similar index could also be used to compare corporate to non-corporate entities: for example, by contrasting the earnings of oil producing countries with the profits of non-government petroleum companies we may be able to learn on their relative power *vis-à-vis* one another and how it changes over time. Thus, while the first index points to a temporal position on a differential power scale, the second may be useful to identify time trends in the distribution of power.

### Differential pecuniary accumulation: back to international political economy

The use of such 'power indices' is meant to accentuate differential accumulation as the *central process* of mature corporate capitalism. This, of course, does not imply that corporate organizations and institutions are somehow more significant than governmental ones. Indeed, with the development of modern capitalism, corporate executives and policy makers have been drawn evermore closer together into a mutually-dependent relationship. During its early stages, capitalism comprised two relatively separate spheres; legal authority was largely embedded in the factory while the political structure was relevant to business mostly in an abstract, speculative sense. In the present century, these two spheres have evolved into a much more complex 'composite'. The development of large-scale business enterprise was intimately related to the expanding regulatory powers of the nation-state, while the evolution of the nation-state was itself inextricably bound up with the spread of corporate capitalism. Since the 1980s, this double-sided process has reached a new stage with the emergence of even more complex relationships – this time between global corporate coalitions and supra-national associations. Seen in this light, capitalism exhibits a continuous progression toward an ever greater symbiosis between the political and the economic, with each stage creating new and more inseparable 'political-economy alloys'. However, the broader context of this interdependency goes beyond the mere interplay of 'rational actors', as *both the corporation and the state slowly lose their 'autonomy' to the universal dictates of differential pecuniary accumulation.*

The *ideal* side of this politico-economic transition is the rise of differential accumulation as a principal regulatory mechanism. With the advance of global production come the integration of world financial markets, the interdependence of trade and capital flows, and the rise of a truly global ownership structure. The essence of this universalization appears in the emergence of the so-called 'normal rate of return' – a conventional standard of accumulation which corporate managers of *both* political and business organs feel increasingly obliged to *exceed*. The 'normal rate of return' and the constant quest to beat it through differential accumulation are abstract, indeed, ideal concepts. In their highest incarnation they are nothing more than bits and bytes parking in computerized databases or riding the information superhighways. But these ideal conventions have acquired social omnipotence and could not be ignored.

### The Weapondollar-Petrodollar Coalition

Our goal in this article is to *demonstrate the significance of differential pecuniary accumulation* as it applies to the interaction of weapons and oil in the Middle East. Given our emphasis on *processes*, we have deliberately chosen not to dwell on the corporate executive or the policy maker. Furthermore, with the exception of occasional commentary, our aim is neither to test the existing statist, liberal or Marxist views, nor to offer any comprehensive alternative. These extensions are relevant and important but go beyond the scope of our paper and must await further research.

Using differential accumulation indices as a basis for analysis, our tentative hypothesis is that, since the 1970s, there was a growing convergence of interests between the world's leading petroleum and armament corporations. Following the rising nationalism and intensified industry competition during the 1950s and 1960s, the major international oil companies have lost some of their earlier autonomy in the Middle East. At the same time, the region was penetrated by large US and European-based manufacturing companies which, faced with heightened global competition in civilian markets, increased their reliance on military contracts and arms exports. Over the past quarter century, these developments helped shape a *Weapondollar-Petrodollar Coalition* between the large military and oil firms, whose differential profitability came to depend on the precarious interaction between rising oil prices and expanding arms exports emanating from successive Middle East 'energy conflicts'.

Following this introduction, the second section of the paper focuses on the Arma-Core of large US-based companies (comprising the largest armament produces at the core of the war economy), examining their differential performance and their relative dependency on domestic military procurement. The arms contractors relied heavily on domestic demand, but they also found it necessary to seek foreign markets for their hardware. The third section deals with the changing nature of arms exports – their increasing commercialization and the way in which they have been affected by the global redistribution of income in the wake of the oil crisis. The fourth section examines the other side of the process, tracing the impact of oil crises on the large petroleum companies. The received view is that, since the late 1960s, the rise of OPEC and the growth in the number of lesser firms undermined the relative position of the Seven Sisters which previously dominated world oil. However, this perception is not supported by the evidence. Based on their differential profit performance, it appears that the large international oil companies have in fact maintained and even consolidated their relative power. The key to their success was a

political alliance with OPEC based on the new atmosphere of 'scarcity' and oil crisis. However, OPEC and the oil companies could not have established this 'limited flow' regime on their own. In retrospect, we argue that this was crucially dependent on the increasing militarization of the Middle East which was largely (though not exclusively) propagated by the military contractors of the Arma-Core. The fifth section offers a framework in which the interactive interests of the oil and armament companies help explain the parallel interaction between energy crises and armed conflicts. The last section draws on and develops these findings as a basis for a new research agenda – pertaining to the Middle East in particular and international political economy in general.

## 2. THE MILITARY BIAS IN THE US ECONOMY AND THE RISE OF THE ARMA-CORE

The impact of economic structure on military spending has been noted already during the early decades of the twentieth century, when institutionalists such as Veblen (1904, 1923) and Marxists like Hilferding (1910) and Luxemburg (1913) pointed to military spending and imperialism as a means of counteracting the monopolization and excess capacity of modern industry.<sup>7</sup> Yet, it was only much later, with the Korean and Vietnam conflicts of the 1950s and 1960s, that military spending appeared to become not only a *consequence* of economic structure, but also a permanent force *shaping* that structure.

Perhaps one of the first writers to recognize this double-sides relationship was Michal Kalecki. Much of his early writings from the 1930s and 1940s were concerned with the effect on macroeconomic performance of the 'degree of monopoly' in the underlying industries. Toward the end of his life, during the 1960s, he closed the circle, pointing to the way in which macroeconomic policy, primarily military spending, could affect the economic and social structure. In his articles 'The Fascism of our times' (1964) and 'Vietnam and US big business' (1967), Kalecki claimed that a continued US involvement in Vietnam would increase the dichotomy between the 'old', largely civilian industries located mainly in the East Coast, and the 'new' business groups, primarily the arms producers of the West Coast. The rise in military budgets, he predicted, would bring a redistribution of income from the old to the new groups, so as to further strengthen the 'angry elements' within the US ruling class and propagate what Melman (1970) later called the 'permanent war economy'.

### The Arma-Core

Was Kalecki right? Has the epicentre of the US big economy indeed shifted from 'civilian' to 'military' oriented corporations? To answer this question we must first identify the 'Arma-Core' of the US economy – that is, the inner group of large firms which appropriate the lion share of defence-related contracts, and which are sufficiently large to exert significant political pressure. A first approximation of this core could be derived from data published by the US Department of Defense (DoD), in its annual listing for the *100 Companies Receiving the Largest Dollar Volume of Prime Contract Awards*. From this publication we can learn that military procurement is fairly concentrated, such that, over the period extending between 1966 and 1991, the largest 100 contractors accounted for between 62 and 72 per cent of the DoD's total prime contracts awards. However, it is probably inappropriate to consider all of the leading 100 firms as members of the Arma-Core. Our tentative criterion for inclusion in this core is for the firm to be both large and sufficiently dependent on defence contracts, and not all of the leading 100 companies fit these characteristics. Some corporations – such as AT&T, IBM, ITT, Eastman Kodak, Ford, Chrysler, Exxon, Mobil and Texaco – are very large, but then military contracts account for only a modest share of their overall sales revenues. Others, like Singer, Teledyne, E-System, Loral, FMC, Harsco and Gencorp, rely more heavily on defence sales, but are probably not big enough to have a notable political leverage. If we concentrate only on the *large defence-dependent* contractors, we end up with a more limited group of about 20–25 firms which, together, could be thought of as the Arma-Core of the US economy.<sup>8</sup>

The precise choice of boundary between the Arma-Core and the remaining contractors is of course arbitrary to some extent, a problem which is further exacerbated by periodic changes in the relative ranking of firms. Given the attendant uncertainty and ambiguity, we find it convenient to focus on a more limited sample of only sixteen large defence-dependent corporations. These include, in alphabetical order: Boeing, General Dynamics, General Electric, Grumman, Honeywell, Litton Industries, Lockheed, McDonnell Douglas, Martin Marietta, Northrop, Raytheon, Rockwell International, Texas Instrument, Textron, United Technologies and Westinghouse. This group is representative of the Arma-Core in that it consists of only large firms and, with only minor exceptions, it included the ten top DoD contractors in every year between 1966 and 1991.<sup>9</sup> During the 1966–91 period, these sixteen firms received more domestic military contracts than any other comparable group of American corporations: on average, they accounted for 36 per cent of the DoD's total prime contract awards, with a floor of

30 per cent (in 1966) and a ceiling of 41 per cent (in 1985). (Aggregate financial data for these firms are given in Appendix A.)

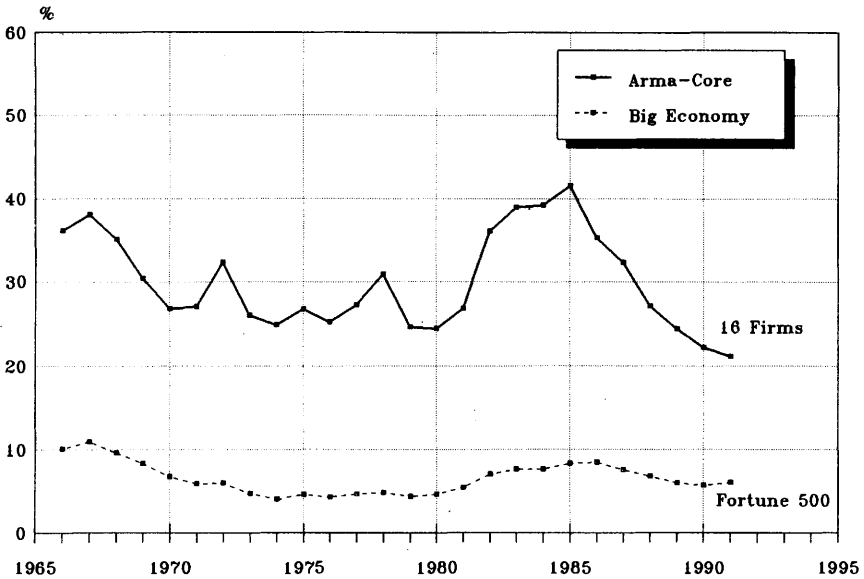
Let us turn now to characterize some aspects of the Arma-Core and assess its relative significance within the US 'big economy'.<sup>10</sup> The first question concerns the 'military bias' of the big economy – that is, the degree to which its large firms depend on military contracts. The concept of 'dependency' is of course not entirely unambiguous. As we emphasized in the introduction, the key factor determining the success, indeed the very survival of a capitalistic firm is not sales but profits. Ideally, then, the military dependency of a firm should be measured by the share of its total *net profit* attributed to defence-related activity. This, however, is easier said than done and, unfortunately, such computations could not be made with available data.<sup>11</sup> A commonly used alternative is the ratio of defence contract awards to overall sales revenues. This latter indicator has certain shortcomings. First, dependency on military sales may have no simple relation with dependency on military profit.<sup>12</sup> Second, strictly speaking, the ratio is not temporally adequate since it compares contract awards which denote advance *orders*, with sales revenues which represent actual *deliveries*. Nevertheless, given the wide usage of this index, and since we are interested here merely with broad comparisons, we can still employ it as a useful indication for the military bias of the US big economy.

Consider then the entries in Figure 1, which describes the ratio of DoD prime contract awards to total sales revenues over the 1966–91 period, first for our sixteen-firm sample of the Arma-Core, and then for the entire big economy tentatively represented by the Fortune 500 group of industrial companies.<sup>13</sup> The dependency index for the Arma-Core is computed as the ratio between the aggregate contract awards and aggregate sales revenues of the sixteen-firm sample. For the big economy, we adopt the simplifying assumption that practically all of the DoD prime contracts are awarded *within* the Fortune 500 group. The index is then calculated as the ratio between the total value of these contracts and the aggregate sales revenues of the Fortune 500 firms.<sup>14</sup>

The data reveal two significant patterns. First, the military bias of the big economy appears to have changed more or less together with that of the Arma-Core. Specifically, we can see that, for both groups, the dependency index declined until the mid-1970s, stagnated until the late 1970s, rose through the early 1980s, and then declined again until the early 1990s. Beyond this temporal similarity, however, the two indices differed, both in their average level, as well as in the amplitude of their fluctuations. Over the 1966–91 period, the Fortune 500 group depended on military contracts for an average of 6.5 per cent of their total sales, and that dependency ranged between a low of 4 per cent (in 1974) and a high of 11 per cent (in 1967). The comparable figures for the Arma-



## THE WEAPONDOLLAR-PETRODOLLAR COALITION



**Figure 1** Ratios of DoD prime contract awards to total sales revenues

*Source:* DoD prime contract awards for the Arma-Core firms are aggregates of individual corporate awards, whereas the Fortune 500 prime contract awards are assumed equal to the DoD's total. Both data are from US Department of Defense, *100 Companies Receiving the Largest Dollar Volume of Prime Contract Awards* (various years). For sales data, see Appendix A.

Core, on the other hand, fluctuated around the much higher average of 30 per cent, and with more pronounced variations – between 21 per cent (in 1991) and 42 per cent (in 1985).

So, although changes in military procurement affected the big economy and its Arma-Core in much the same direction, it is evident that the large military contractors were far more dependent on these budgets and much more sensitive to their fluctuations than the rest of the big economy. This in turn means that, when looking for the structural aspects of military spending, one must go beyond the simple aggregates – including ones which narrow their focus only to the big economy – and whenever possible concentrate specifically on those pivotal groups which compose the Arma-Core at the centre of the war economy.

This methodology is useful when we come to assess Kalecki's prediction for the rising power of military-based industries. If Kalecki was right, and the centre of gravity has indeed shifted toward defence-related activity, this should have improved the position of the Arma-Core

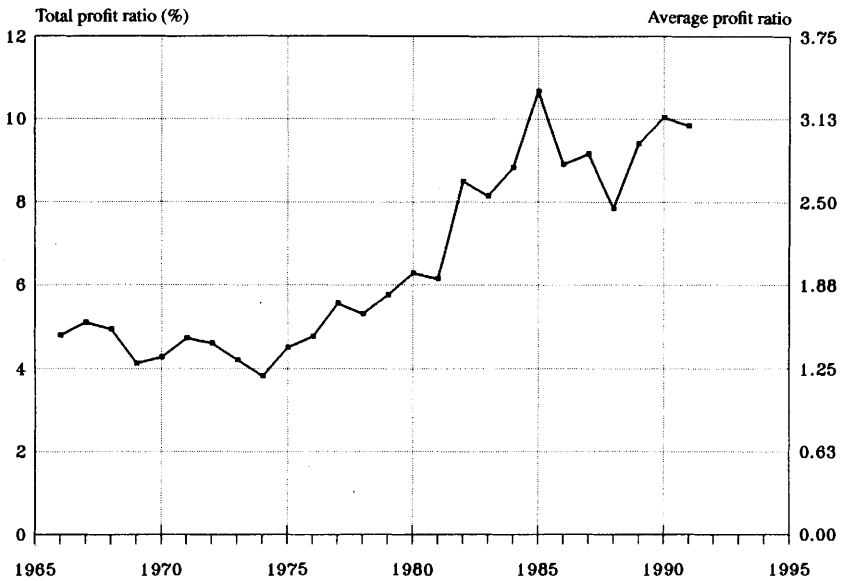


Figure 2 The rise of the Arma-Core: relative profit indicators (16 firms)

Source: For the Arma-Core profit, see Appendix A. Fortune 500 profits are from 'The Fortune 500' (various years).

relative to the other large firms. The most straightforward way to examine this process is to look on the distribution of net profit within the big economy. In Figure 2, we describe the underlying changes in two related ways. The left-hand scale of the chart denotes the total profit ratio, measured as the relative share of the sixteen Arma-Core firms in the overall net profit earned by the Fortune 500 corporations.<sup>15</sup> The right-hand scale indicates the average profit ratio, computed as a ratio between the average profit per firm in the Arma-Core and the average profit per firm for the Fortune 500. Since the number of companies in each group is fixed, the latter ratio is given by a simple linear transformation of the former. The meaning of the two indices is different, however. To the extent that these profit ratios are indicative of relative corporate 'power', the former denotes the overall power of the *entire* Arma-Core, while the latter signifies the proportionate power of a *typical* Arma-Core firm.

The impression of changing fortunes that emerges from this picture supports Kalecki's prediction. In 1967, when spending on the Vietnam War was close to its peak, the Arma-Core was appropriating as much as 5.1 per cent of the total net profit earned by the big economy. In that year, a typical Arma-Core firm, measured by the size of its net profit, was already 1.6 times larger than an average Fortune 500 corporation.

The end of US involvement in Vietnam and the relative drop in military budgets mitigated the power of the Arma-Core and, until 1974, reduced the total profit ratio down to 3.8 per cent and the average profit ratio to 1.2. Since the mid-1970s, however, the Arma-Core firms have been on the rise once more. With defence budgets increasing again, the total profit ratio climbed more or less continuously reaching 10.7 per cent by 1985, when an average Arma-Core firm earned 3.3 times the net profit of its Fortune 500 counterpart. Since the mid-1980s, with defence procurement levelling off, the climb of the Arma-Core has halted and the total and average profit ratios fluctuated around an average of 9.2 per cent and 2.9, respectively. All in all, these structural developments seem to have followed the path anticipated by Kalecki: since the Vietnam conflict, the United States has maintained sizeable defence expenditures, and although the precise contribution of such spending to the ascent of its main recipients could not be easily deciphered, it appears safe to conclude that this persistent military bias served to enhance the relative power of the Arma-Core.

### Globalization and the military bias

To a certain extent, this interaction between military expenditures and business restructuring was also part of a much broader, worldwide transformation in the relationships between nation-states and multinational firms. Following the Second World War, the global economic significance of the US economy began to wane. To illustrate: in 1960, the US GDP was one and a half times larger than the combined total for today's 12 EU members and Japan; in 1992, after three decades of relative decline, it amounted to only one half of that total.<sup>16</sup> During the early 1950s and 1960s, the US economy was still a relatively 'closed' market. The sum of export and import amounted to about 10 per cent of the GNP and the country ran a trade surplus. After the 1970s, however, things began to change. Foreign trade has now risen to around 20 per cent of the GNP but, as the country began to 'open', it also started to suffer from growing trade deficits.<sup>17</sup> This decline has been reflected in the global share of US exports which represented about 20 per cent of world exports in the early 1950s, but dropped to less than 10 per cent by the early 1990s.<sup>18</sup> Finally, the United States has been increasingly penetrated by foreign-based firms, primarily from Europe and Japan. As late as 1970, US direct investment abroad, which totalled \$78 billion, was still six times larger than the \$13 billion of direct foreign investment in the United States. By 1989, US direct investment abroad totalled \$374 billion, but that was already lower than the direct holdings of foreigners in the United States which reached \$401 billion in that same year.<sup>19</sup>

But then, this overall international decline of the US *macroeconomy* accelerated the multinational expansion of US-based *corporations* and made the domestic market decreasingly significant for their operations. The relative 'evisceration' of the US is evident from the geographic redistribution of corporate profit: while during the early 1950s, US-based firms obtained only about 10 per cent of their net profit from foreign operation, by the early 1990s, this has more than tripled to over 30 per cent.<sup>20</sup>

With these transformations in mind, it is now easier to understand why, over the past quarter century, the most successful US corporations were often those which relied more heavily on military-related activity. Facing a growing international competition in civilian markets, many large US firms became highly dependent on attractive government contracts.<sup>21</sup> (Indeed, at least part of their decline in civilian markets could be attributed to the attraction of profitable government business.) This state of affairs entangled the US government in a persistent commitment to 'military Keynesianism' which, interestingly enough, was only strengthened by the growing internationalization of the big corporations. The reason is that, with a larger share of corporate profits coming from abroad, domestic government policies affected a diminishing portion of these firms' earnings and, so, all other things being equal, a *given* increase in the companies' overall profit required a *larger* increment of domestic military contracts. Under these circumstances, any attempt to eliminate the military bias of the US economy spelled a major blow to the credibility of macroeconomic policy and, perhaps no less importantly, a serious injury to some of the country's most powerful firms.

However, the reliance of Arma-Core firms on their government's spending has never been complete. The problem arises from an intrinsic contradiction between the requirements of *arms making* and the reality of *arms selling*. From its industrial side, the technology-intensive nature of weapon production requires continuous research and development and open production lines. Furthermore, the manufacturing of modern military hardware is a highly specialized process which cannot be easily converted into civilian use (and even when conversion is technologically feasible, demand for the additional output may still be too small). These industrial considerations call for a *stable* growth in the demand for arms, but that is not what usually happens in the armament business. Acting as a drain on the country's resources, military expenditures must be legitimized by external threats, and these tend to fluctuate with the ups and downs of international politics and the frequency of armed conflicts. As a consequence, domestic weapon procurement is *inherently unstable* and that poses a serious difficulty for the large arms makers. If these firms are to keep their production lines open, they could never rely solely on domestic procurement and must constantly look for 'counter-cyclical' export markets.

### 3 ARMS EXPORTS: PROFITS, FOREIGN POLICY AND GLOBAL INCOME REDISTRIBUTION

The perils of restricted demand are hardly new, of course. For example, during the eighteenth century's Seven-Years War, Frederick the Great found himself forced to import 32,000 rifles from abroad and that, because only a few years earlier he decided to cut down production capacity for lack of domestic demand (Frederick the Great, 1979: 18). The simplest solution for this dilemma would have been to supplement the home market with foreign sales, but, initially, that was not at all obvious and for a very simple reason: the making of weapons was usually run by the state whose officials were hardly enthusiastic about selling them to potential enemies. Increasingly, however, the advance of industry moved the production of armament into *private* hands, which in turn enabled the arms business to expand into an intricate *international* market. The imperative of combining private ownership and foreign sales was succinctly elucidated in 1913, when, on the eve of the First World War, Krupp got entangled in a corruption scandal. Answering his critics in the Reichstag, the Minister of War, Josias von Heeringen, defended this new system, arguing that in order to maintain sufficient capacity for wartime, military producers had to export in peacetime; this, he insisted, could be achieved only by private firms which were free from the patriotic scruples of state companies (Sampson, 1977: 42). And indeed, by the end of the nineteenth century, the large armament firms – such as Krupp, Nobel, Armstrong, Vickers, Du-Pont, Electric Boat and Carnegie – were all privately owned and highly dependent on foreign markets. Most importantly, the production and sale of arms were, by and large, an unregulated business (*ibid.*, chs. 2–4).

This structure of the military industry first came under close scrutiny during the 1920s and 1930s. After the First World War, the League of Nations pointed to the arms companies as a major fomenter of international conflict, thus flaring a series of official investigations into the arms business, particularly in Europe and the United States. Following the Nye Committee hearings, an isolationist US Congress passed the 1935 Neutrality Bill with a special provision for a National Munitions Control Board to supervise American arms exports. The Lend Lease Act of 1941 brought the US government further into the centre stage of the arms trade, and by the end of the Second World War, it was commonly accepted that the export of weapons was no longer a private affair, but rather an integral part of the country's *foreign policy*.

### The resurgence of the arms trade

After the war, the 'Truman Doctrine' saw military exports, particularly to Europe, as part of the larger effort to contain communism, a goal which was later extended to legitimize arms shipments to South East Asia. Yet this new emphasis on broader policy goals has done little to resolve the industry's intrinsic problem of unstable demand. The continued military Keynesianism of the 1950s and 1960s created the basis for an Arma-Core of large military-dependent firms and, by the late 1960s, toward the ending of US involvement in Vietnam, these corporations appeared just as vulnerable to budget cuts as were the Carnegies and Du-Ponts of the turn of the century. Despite several decades of change, US weapon production has remained a predominantly private undertaking and, with a receding war effort, it was now once again seeking to counteract excess capacity with foreign military sales.

The renewed significance of export markets is illustrated by the data displayed in Figures 3a and 3b. In the first of these charts, we contrast the overall dollar value of US domestic military procurement with that of US military exports (excluding construction and services), for the period between 1963 and 1989. (Both series represent actual deliveries and are denominated in constant prices.)<sup>22</sup> Looking at the data, we can see how, during the mid-1960s, military exports (directed mainly to South Vietnam), began to rise, and how this was eventually followed by increases in domestic procurement to sustain the intensified war effort. After the late 1960s, however, this positive relation was no longer apparent. While domestic spending began to decline in 1968, arms exports (now flowing increasingly to the Middle East) continued to increase until 1973. Beginning in the mid-1970s, domestic military sales again started to rise, and continued their ascent until the subsequent reversal of the mid-1980s. Military exports, on the other hand, did not

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*Figure 3a* US domestic and export deliveries of defence products (1987 prices)

*Figure 3b* Share of military-related profits attributed to arms exports

*Source:* Domestic deliveries (in current prices) are from *Citibase* (1990), series MSNF, pp. XII-3-5. Exports deliveries (in current prices) are from the US Arms Control and Disarmament Agency, *World Military Expenditures and Arms Transfers* (various years). GDP price deflator is from US Congress, *Economic Report of the President* (1993), Table B-3, p. 352.

*Note:* Domestic procurement denotes the value of manufacturing shipments of defence products. Arms exports comprise shipments of military commodities, including dual-use equipment when primary mission is military, but excluding military services such as construction and training. Constant-price data are obtained by dividing current-price data by the US GDP implicit price deflator.

# THE WEAPONDOLLAR-PETRODOLLAR COALITION

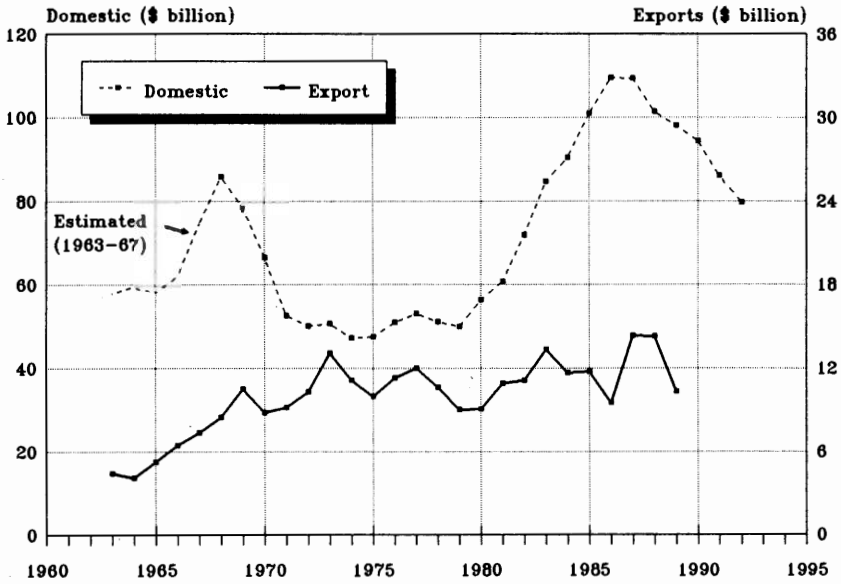


Figure 3a

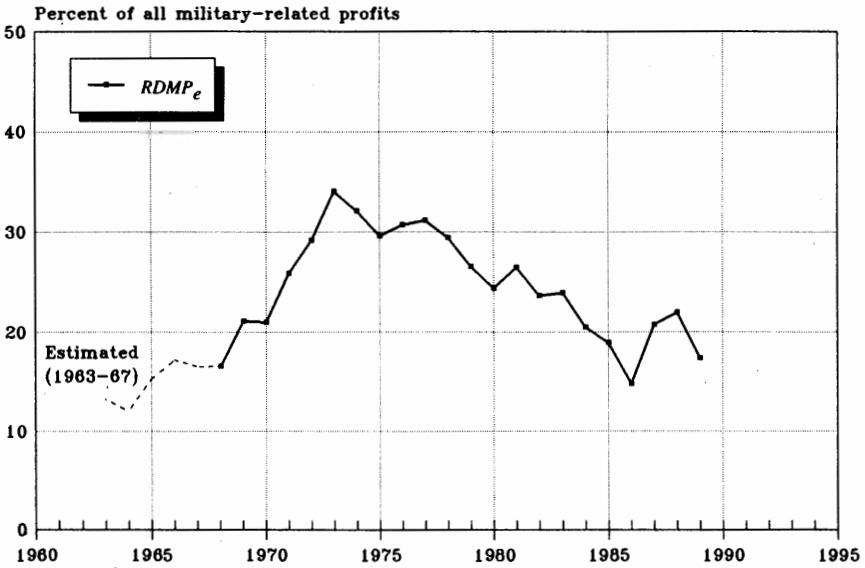


Figure 3b

exhibit any compensating decline and, throughout the period continued to fluctuate around their early-1970s levels.

Considering the relative magnitudes of the two series, one may be tempted to conclude that military exports must have been relatively unimportant for the US arms makers. The export figures varied between a low of \$4.1 billion (in 1964) to a high of \$14.3 billion (in 1987), whereas domestic procurement figures were far higher, ranging from a low of \$47.1 billion (in 1974) to a high of \$109.6 billion (in 1986). Such comparisons have led researchers like Krause (1992: 106) to reject the 'economic' rationale for US foreign military sales, but this inference may be too hasty. Note that, ultimately, what matters for the arms makers is not the level of sales, but the amount of *profit*, and that tends to be far higher in export sales than in domestic procurement. An internal DoD study cited in Brzoska and Ohlson (1987: 120) estimates that foreign military sales are 2.5 times more profitable than those made to the US government. Similar ratios – ranging from 2 to 2.3 – emerge from industry sources (US Congress, Office of Technology Assessment, 1991: 53). This kind of information cannot tell us about the absolute magnitude of profit in each type of activity, but it may help us assess their relative significance.

To do that, let us divide overall military sales ( $MS$ ) into their domestic component ( $MS_d$ ) and export component ( $MS_e$ ) and denote the ratio between the profit markups on export and domestic sales by  $v$  (meaning that military exports are  $v$  times more profitable than domestic procurement). The relative dependency of military-related profits on military exports ( $RDMP_e$ ) is then given by:

$$RDMP_e = (v \times MS_e) / (v \times MS_e + MS_d)$$

Suppose now that, over the past quarter century, US arms exports were *twice as profitable* as domestic military sales. What would that mean for the relative dependency of overall military profit on foreign sales ( $RDMP_e$ )? Using available data for domestic procurement ( $MS_d$ ) and exports ( $MS_e$ ) as given in Figure 3a, and substituting 2 for  $v$ , we obtain the temporal pattern of that dependency outlined in Figure 3b. The results of this computation are of course imprecise, first, since the respective profit markups vary over time and, second, because the average value of  $v$  may differ from 2. Yet given that we focus here only on the long-term changes in  $RDMP_e$ , these imprecisions are not likely to alter our inference.

First, we can see that contrary to the common view, military exports are not at all redundant for the arms makers. Based on our conservative assumption for  $v$ , during the period between 1963 and 1989, these exports accounted for an average of 22.7 per cent of all military-related



profit in the United States. Second, over the years, the changing balance between domestic and foreign weapon sales worked to alter the relative significance of arms exports for military-related profit. The emerging historical pattern could be divided into three distinct phases: the period between the mid-1960s and the mid-1970s when *RDMP<sub>e</sub>* exhibited a more or less continuous increase – from a low of 12.0 per cent in 1964, to a high of 34.1 per cent in 1973; the subsequent period until the mid-1980s in which the index declined, reaching 14.8 per cent by 1986; and, finally, the recent period, from the mid-1980s onward, when the index seems to have reverted back to a rising trend – a tendency which will most probably continue in the 1990s.<sup>23</sup> These observations suggest that arms exports not only remained an important contribution to the well-being of US weapon makers, but also that during periods of slack domestic demand, such contribution could be critical for their survival.<sup>24</sup>

### Commercialization and regional shifts

Given these considerations, it is then not surprising that the course of US foreign policy became inextricably bound with the business side of military exports. The interaction between trade and the flag has been in turn affected by two closely-related developments. The first of these developments, outlined in Table 1, was the gradual commercialization of arms exports. The second development, illustrated in Table 2, involved shifts in the global distribution of 'hot regions' from Europe, to South East Asia, to the Middle East and North Africa. Let us examine these issues more closely. The entries in Table 1 provide data on the average annual value of US arms sales in the four decades between 1950 and 1989, and some initial figures for the early 1990s. The data are further broken down, first by programme of delivery and then by method of financing. Looking at the breakdown by delivery, we can see that there was a gradual movement from aid-financed programmes to paid-for purchases. During the 1950s, military assistance accounted for nearly 95 per cent of all arms transfers but, over time, that has fallen systematically, dropping below one per cent by the early 1990s. The decline in the value of military grant programmes was more than compensated, however, by deliveries through the foreign military sales programme, which rose both in absolute as well as relative terms, from just over 5 per cent of the total in the 1950s, to about two-thirds in the 1980s and early 1990s. Since the 1980s, there was also a marked increase in direct corporate-to-government commercial sales, which, by the early 1990s, reached almost one-third of all deliveries – up from only one-tenth in the 1960s and 1970s.<sup>25</sup> Note that some foreign military sales and commercial transactions which are formally funded through loans, end up being paid for by the US government via waived payments. As we can see

*Table 1* Components of US arms exports by programme and financing<sup>a</sup> (annual averages)

| Period | Total<br>(\$ million/<br>year) | Distribution<br>by programme<br>(percentage of total) |  |                                  | Distribution<br>by financing<br>(percentage of total)       |                                  |
|--------|--------------------------------|---|--|----------------------------------|---|----------------------------------|
|        |                                | Foreign<br>military<br>assistance <sup>b</sup>        | Direct<br>military<br>sales <sup>c</sup> | Commercial<br>sales <sup>d</sup> | Military<br>assistance<br>+ waived<br>payments <sup>e</sup> | Loans<br>or<br>cash <sup>e</sup> |
| 1950-9 | 2,210                          | 94.8  | 5.2                                      | 0.0                              | 94.8  | 5.2                              |
| 1960-9 | 2,391                          | 61.4  | 28.1                                     | 10.5                             | 61.4  | 38.6                             |
| 1970-9 | 6,424                          | 27.4  | 63.2                                     | 9.4                              | 33.4  | 66.6                             |
| 1980-9 | 13,382                         | 1.4   | 69.6                                     | 29.0                             | 28.5  | 71.5                             |
| 1990-2 | 13,430                         | 0.7   | 67.0                                     | 32.3                             | 31.9  | 68.1                             |

Source: Computed from US Department of Commerce, Bureau of Economic Analysis, *Statistical Abstract of the United States*, 1978, Table 591, p. 373; 1979, Table 594, p. 368; 1991, Table 553, p. 341; 1992, Table 537, p. 341, and from US Defense Security Assistance Agency, *Foreign Military Sales, Foreign Construction Sales and Military Assistance Facts as of September 30, 1989*, and *as of September 30, 1992*.

*Notes*

- <sup>a</sup> These data are more comprehensive than those published by the US Arms Control and Disarmament Agency (ACDA) in that, in addition to defence articles, they also include the value of military construction and services.
- <sup>b</sup> Comprises deliveries under Military Assistance Service Funded Programme (MASF), Military Assistance Programmes (MAPs) and Section 506(a) Drawdown Authority.
- <sup>c</sup> Include the export of commodities, construction and services under the Foreign Military Sales Programme (FMS).
- <sup>d</sup> Cover direct corporate-to-government transactions under the Direct Commercial Sales Programme (DCS).
- <sup>e</sup> Data for 1979-82 were interpolated.

from the distribution by financing, however, even if we take this into account, the overall picture is still one of persistent commercialization – with the combined proportion of deliveries funded through military assistance and waived loans dropping from about 95 per cent in the 1950s, to two-fifths in the 1960s, to one-third or less since the 1970s.

The backdrop for this gradual transition could be illustrated in reference to Table 2, where we provide a regional breakdown for the world's main arms-importing regions during four distinct periods. The general picture emerging from the data indicates both an ongoing expansion in the overall volume of arms transfers, as well as a continuous change in their geographic focus. In the first period, between 1963 and 1964, global arms imports (or exports) amounted to an annual average of \$11.7 billion, with about one half going to Europe (all dollar figures are in constant 1987 prices). In the aftermath of the Second World War, the European continent was perceived as potentially unstable and, indeed,

THE WEAPONDOLLAR-PETRODOLLAR COALITION

Table 2 Arms imports by region (annual averages)

| Period  | World total<br>(\$ million/year,<br>1987 prices <sup>a</sup> ) | Of which (percent of world total) |              |                |        |        |
|---------|--|-----------------------------------|--------------|----------------|--------|--------|
|         |  | NATO &<br>Warsaw<br>Pact          | East<br>Asia | Middle<br>East | Africa | Others |
| 1963-64 | 11,711   | 49.9                              | 17.3         | 9.9            | 4.3    | 18.7   |
| 1965-73 | 19,356   | 28.9                              | 35.2         | 16.8           | 3.8    | 15.3   |
| 1974-84 | 45,598   | 18.7                              | 11.3         | 36.3           | 16.3   | 17.4   |
| 1985-89 | 51,069   | 18.0                              | 12.4         | 32.9           | 9.5    | 27.1   |

Source: Original current-price data are from US Arms Control and Disarmament Agency, *World Military Expenditures and Arms Transfers* (various years). (Because of repeated updates, data are from the last annual publication in which they appear.) Implicit GDP deflator is from US Congress, *Economic Report of the President*, 1993, Table B-3, p. 352.

<sup>a</sup> Constant price data are computed by dividing the original nominal figures by the US implicit GDP deflator.

until the mid-1960s, the United States still sent most of its military assistance – primarily in the form of surplus stockpile grants – to its NATO allies. Since 1965, however, this emphasis has begun to change. The ‘hot spot’ of the East-West conflict moved to South East Asia and with it came a rapid escalation in the global armament trade. Over the 1965-73 period, world arms import rose by 65 per cent, to an annual average of \$19.4 billion – with over one-third now going to East Asia (South East Asia and China). In the United States, the shift of focus from Europe to the outlying areas of the Third World brought a redefinition of arms-export policies. Weapons deliveries to Vietnam and other South East Asian countries were still financed by aid (largely through the Military Assistance Service Fund Programme (MASF), but the European countries were now increasingly requested to pay for their US-made weapons.

This change, which signalled a return to the pre-war *commercial* pattern of weapon sales, was to some extent inescapable. After the Second World War, US arms transfers came to be seen as a tool of foreign policy, but that appearance could be maintained only as long as those exports remained relatively small. The problem was that the policy of ‘communist containment through military assistance’ depended crucially on the Administration’s ability to appropriate the adequate aid funds, and as time passed, this became increasingly difficult to achieve. With the US relative decline in international markets came also a growing fiscal crisis in the domestic arena. The federal budget deficit, which stood at an annual average of only 0.4 per cent of GDP during the 1950s, started to rise – initially only slightly to 0.5 per cent of GDP in the 1960s, but then more rapidly, to 1.9 per cent in the 1970s, 4.1 per cent in the 1980s,

and 4.8 between 1990 and 1993.<sup>26</sup> This long-term development exerted constant pressure toward a greater 'commercialization' of arms exports. During the Eisenhower, Kennedy and Johnson Administrations, the trend was limited mainly to transactions with the NATO allies, but the late-1960s entanglement in Vietnam hastened the final policy reversal. Since 1969, the 'Nixon Doctrine' stipulated that all transfers of weapons – including those going to the Third World – should, whenever possible, depend not on direct US military involvement, but on the buyer's ability to pay.

The single most important factor enabling this shift from aid to sales was the major global redistribution of income occurring in the wake of the 1973 oil crisis. The explosive growth in the oil revenues of OPEC countries made them ideal clients for weaponry and, in 1974, after the US exit from Vietnam, the Middle East became the world's largest importer of armaments. Over the 1974–84 period, Middle East countries accounted for 36.3 per cent of the global arms trade, which by then had increased by 136 per cent, to an average annual level of \$45.6 billion (during that time, there was also a significant rise in the share of African countries, primarily oil-exporting Libya). The pivotal role of global income redistribution in this process can hardly be overstated. Indeed, the drop of oil revenues through the latter half of the 1980s had a negative impact on the arms trade: during the 1985–9 period, global military transfers rose only marginally to an average annual level of \$51.1 billion, with much of the stagnation attributed to the decline in Middle East imports which now amounted to only 32.9 per cent of the total. (Recently, the global redistribution of income has taken a new turn with the rapid growth of some Far East countries such as Taiwan, Indonesia, Malaysia and South Korea, and it is interesting to note that this shift has been accompanied by a 'mini-boom' of military imports flowing into their region. These higher imports account for much of the 1985–9 increase in the share of 'Others' recorded in Table 2.)

To sum, the post-war era was marked by several important changes affecting the nature of arms production and trade. In the United States, there emerged, particularly after the Vietnam conflict, an Arma-Core of very large defence contractors which came to appropriate a growing share of the big economy's net income. The relative growth of these companies was influenced by the continuous 'military bias' of the US economy, which was in turn partly the consequence of a progressive decline of US-based firms in global civilian markets (on top of a domestic 'profit squeeze' as described in Harrison and Bluestone, 1988). At the same time, the consolidation of this powerful group of firms must have turned them into an important element affecting government policy – mostly in the domestic budgetary process, but increasingly also in the choice of foreign policy. This latter significance stemmed primarily from

the intrinsic dependence of arms production on flexible foreign demand. After the Second World War, the US Administration made military exports into a tool of foreign policy but, over time, the very menu of policy options has been increasingly bound up with the development of the Arma-Core. Initially, the need for foreign markets was rather limited and was easily fulfilled by US-financed military aid. However, the continuous ascent of defence-dependent corporations eventually raised the pressure for arms exports up to a level which could no longer be financed solely by US-government grants. The historical solution for this dilemma was a gradual return to the pre-war pattern of commercial trade in weaponry, and what made this transition feasible was the global redistribution of income which came in the wake of the Middle East oil crises.

With this latter development, the US Arma-Core found itself entering the centre stage of Middle Eastern 'energy conflicts' – an entry of far-reaching structural consequences. The large defence contractors which earlier depended mainly on the level of domestic military spending and foreign military aid, now found their financial fate increasingly correlated with the boom and bust of the oil business. This, however, was only one part of a much broader transformation. As it turned out, the arms makers were not the only players who found their theatre transmuted under their own feet. Also with them on the same moving stage were the newly empowered OPEC governments, the governments of the imperilled Western countries, and the major petroleum companies whose dominant position in the world of oil was now called into question. The emergence of the Middle East as the 'hot spot' of world conflict and the leading arms-importing region has altered the delicate relationships between these multinational corporations and both their parent and host governments; furthermore, the seemingly circular sequence of regional wars and oil crises brought the petroleum companies into a new, and in some way unexpected alliance with the arms makers. Before we can turn to examine the underpinnings of this alliance, however, we must look more closely on the changing circumstances in the petroleum industry.

#### 4 MIDDLE EAST OIL AND THE PETRO-CORE

The energy crisis of the 1970s heightened the so-called 'multinational debate' on the role of large companies in transnational relations. Studies on the international politics of energy could be conveniently classified as belonging to three main schools. Radical interpreters such as Tanzer (1974, 1980), Stork (1975), Engler (1977), Jenkins (1987) and Bromley (1991), place the major oil companies as pivotal actors in the globalization of capital, and hence tend to emphasize 'instrumentalist' and/or

'structuralist' aspects of energy policies. Liberal observers like Adelman (1972) and Vernon (1971), acknowledge the significance of the oil majors, though, in their opinion, the importance of these companies stems not from any lasting political power, but rather from the ephemeral monopolization of critical technologies. Finally, contrary to both liberal and radical views, conservative scholars such as Krasner (1978) and Lipschutz (1989), tend to discount the notion that the major oil companies have had a crucial impact on the politics of oil, emphasizing instead the supremacy of the 'state' and the 'national interest'.

Interestingly, the evidence used in this debate is conspicuously incomplete. Thus, there is considerable reliance on Congressional hearings into the conduct of foreign policy and on other publicly-available government documents, but as most observers know too well, the relevant activities of the major oil companies remain cloaked in secrecy and knowledge about their impact on public policy leaves much to be desired (see for example, Barnett, 1975: vii; Turner, 1983: 123-4). Moreover, even if we had known everything there was to know on the goals and policies of all principal actors, that in itself would still be insufficient. Although highly instructive and often indispensable, this type of evidence (which is usually all that we get from the correspondence of public officials and testimonies of company executives) is still largely 'circumstantial'. What is missing is a clear focus on *differential accumulation*. If we are to assess both the balance of power among the different actors, as well as the extent to which they have achieved their respective goals, we need to deal with more 'objective' data, particularly those regarding the relative business performance of the oil companies. Surprisingly, however, such analysis is often deficient or simply lacking from the debate. As we demonstrate below, the consequences of this inadequacy have been detrimental, for, by ignoring a few but crucial financial statistics, many researchers have prematurely inferred the demise of the large oil companies.

### Demise of the oil majors?

The dominant view among students of the subject is that the oil crisis of the 1970s signalled the final stage in a fundamental qualitative transformation which began in the 1950s and eventually altered the structure of the oil industry. The first aspect of this transformation has been the relative decline of the major oil companies *vis-à-vis* a growing number of lesser firms. After the Second World War, the 'Seven Sisters' – notably Exxon (then Standard Oil of New Jersey), Royal-Dutch Shell, British Petroleum (previously Anglo-Iranian), Texaco, Mobil, Chevron (then Socal) and Gulf – still dominated the relatively concentrated international oil arena. Gradually, however, the entrance of smaller independent

companies, the growth of existing firms other than the seven largest, and the re-entry of the Soviet Union into Western energy markets contributed to a significant erosion in the market position of the oil majors and a substantial drop in corporate concentration. The consequences of these changes were that, over the two decades between 1953 and 1972, the share of the 'Seven Sisters' in the oil industry outside the United States fell from 64 per cent to 24 per cent of all concession areas; from 92 to 67 per cent of proven reserves; from 87 to 71 per cent of production; from 73 to 49 per cent of refining capacity; from 29 to 19 per cent of tanker capacity; and from 72 per cent to 54 per cent in product marketing (Jacoby, 1974: Table 9.12, p. 211).

A second and perhaps more important facet of this transformation was that the locus of control, which previously rested with the owner and officers of the large petroleum companies, has now apparently shifted into the hands of government officials, monarchs and dictators. At the 'upstream' part of the industry, the oil companies succumbed to the relentless nationalistic pressure of their host countries, and after a quarter-century of eroding autonomy eventually surrendered most of their crude-oil concessions. Once begun, the transition was swift and decisive. The multinational companies which as late as 1970 still owned about 90 per cent of all crude petroleum produced in the non-communist world, found their equity share drop sharply to only 37 per cent by 1982, most of it now concentrated in North America (figures provided by Hartshon and cited in Penrose, 1987: 15). A similar change occurred at the 'downstream' segment of the industry, particularly in the Western industrial countries. With the oil crisis, the cost of energy and its very availability became major policy issues with wide-ranging domestic and foreign implications, so that here, too, the firms found they had to comply with political dictates – in this case, those coming from their own parent governments. Energy in general and petroleum in particular became *political* questions and just 'as war was too important to be left for the generals', writes Yergin (1991: 613), 'so oil was clearly too important to be left to the oil men'.

And so emerged the 'demise thesis'. According to Turner (1983: 118–24), after the Second World War the major companies have come to assume various roles, acting as 'governmental agents', as 'transmission belts' between host and parent governments, as occasional 'instigators', or simply as 'complicating factor' – but, in his opinion, all of these roles have merely added some colour to the sphere of international political economy. In the final analysis, he argues, it was the diplomats who were making the crucial decisions, and the multinational petroleum companies – particularly after the oil crisis – have been pushed aside, reduced to a status of 'interested bystanders' in the high politics of world oil (*ibid.*: 147–8).

The 'demise thesis' appears fashionable and persuasive. It certainly seems as the next logical step in a long theoretical sequence which began with the 'bureaucratic revolution' of the 1930s, continued through the 'managerial revolution' of the 1940s and the 'death of competitive capitalism' of the 1960s, and led to 'statism' during the 1970s. There is only one problem: the supporting evidence is divorced from the central regulatory mechanism of capital accumulation; it tells us nothing about the *appropriation of profit*. In the final analysis, capitalism emerged and expanded not because it offered a new ethos, but because that ethos helped the rising bourgeoisie alter the distribution of income from landed rent to business profit. For that reason, those who argue in favour of bureaucratic-statist determinism, or believe in the demise of big business must go to the essence of capitalism and demonstrate that these developments have fundamentally altered the distribution of income and the mechanism of accumulation.

Thus, in order to conclude that the oil majors have indeed declined, we must show not only that they have lost market shares and become dependent on government policies, but, ultimately, that these structural and institutional changes have affected their business *performance*. If the large petroleum firms were in fact squeezed between the increasing discipline of market forces and the growing demands of governments, that must have exerted a considerable downward pressure on their earnings. Under these circumstances, one would have expected the *net profits* of the oil companies to wither – either absolutely, or at least relative to some broader aggregates. Surprisingly, however, this has not been demonstrated in the literature. Most studies pertaining to the 'multinational debate' in the energy sector either gloss over the issue or simply ignore it altogether, and even where profits are referred to, the data are often incomplete and rarely analysed in a wider historical context.<sup>27</sup> Unfortunately, this neglect helps distort the overall historical picture, for while the institutional and structural indicators may imply that the major oil companies have declined, that is not at all what the profit data seem to suggest!

In Table 3, we provide some long-term summary indices for the profit performance of the world's six largest petroleum companies. This group – which we shall label here as the 'Petro-Core' – consists of the original 'Seven Sisters' with the exception of Gulf which was acquired by Chevron in 1984. (Aggregate financial data for the Petro-Core firms are given in Appendix B.) The comparison focuses on relating the profit performance of the Petro-Core to corresponding figures for larger corporate groupings, including a wider composite of petroleum firms, the Fortune 500 group of US-based companies, and the US corporate sector as a whole.



THE WEAPONDOLLAR-PETRODOLLAR COALITION

Table 3 Relative profitability indicators: the Petro-Core (6 firms)<sup>a</sup> in relation to selected aggregates (annual averages, percent)

| Period | Rate-of-return ratios |  |                                   | Net-profit shares (per cent)          |  |                                    |
|--------|-----------------------|--|-----------------------------------|---------------------------------------|--|------------------------------------|
|        | (1)                   | (2)  | (3)                               | (4)                                   | (5)  | (6)                                |
|        | Rate of return        | Petro-Core<br>÷<br>Petroleum<br>40-42 <sup>b</sup> | Petro-Core<br>÷<br>Fortune<br>500 | Petro-Core<br>÷<br>Petroleum<br>40-42 | Petro-Core<br>÷<br>'Fortune<br>502' <sup>c</sup> | Petro-Core<br>÷<br>All US<br>corp. |
| 1930-9 |                       |  |                                   |                                       |  | 9.1 <sup>d</sup>                   |
| 1940-9 |                       |  |                                   |                                       |  | 3.3                                |
| 1950-9 |                       |  |                                   |                                       | 18.2 <sup>e</sup>                                | 7.2                                |
| 1960-9 | 11.5 <sup>f</sup>     | 1.01 <sup>g</sup>                                  | 1.00 <sup>f</sup>                 | 61.3 <sup>g</sup>                     | 17.1   | 8.1                                |
| 1970-9 | 14.3                  | 0.99   | 1.12                              | 61.7                                  | 18.0   | 9.0                                |
| 1980-9 | 13.1                  | 1.08   | 1.03                              | 73.2                                  | 17.8   | 10.5                               |
| 1990-1 | 11.5                  | 1.03   | 1.20                              | 78.1                                  | 22.3   | 9.1                                |

Source: For net profit and rate of return on equity of the Petro-Core, see Appendix B. Net profit of all US corporations are from US Department of Commerce, Bureau of Economic Analysis, *The National Income and Product Accounts of the United States, 1929-1982. Statistical Tables*, Table 6.21B, pp. 309-10; from Citibase (1990), Table 6.21B, p. X-6-9, series GAA; and from US Department of Commerce, Bureau of Economic Analysis, *Statistical Abstract of the United States, 1992*, Table 871, p. 542. Net profit and rate of return on equity for the Fortune 500 are from *The Fortune 500* (1955-92). Net profits and rate of return on equity for the world's 40-42 leading petroleum firms are from Carl H. Pforzheimer & Co, *Comparative Oil Company Statements*, as reported in the *Statistical Abstract of the United States* (various years).

Notes

- <sup>a</sup> The Petro-Core consists of British Petroleum, Chevron, Exxon, Mobil, Royal/Dutch Shell and Texaco.
- <sup>b</sup> The Petroleum 40-42 denote the Pforzheimer & Co group of major non-governmental petroleum corporations, representing a composite of 40-42 major worldwide oil firms aggregated on a consolidated, total company basis.
- <sup>c</sup> The 'Fortune 502' comprise the Fortune 500 corporations, as well as British Petroleum and Royal/Dutch Shell.
- <sup>d</sup> Excluding 1931-2 in which total US net corporate profits were negative.
- <sup>e</sup> For 1954-9.
- <sup>f</sup> For 1966-9.
- <sup>g</sup> For 1968-9.

The first column gives the average annual net rate of return (net profit on owners' equity) for the Petro Core. The overall impression from these data is that the oil crises of the 1970s and early 1980s in fact helped boost the profitability of the large oil companies, a notion which we return to examine more closely later in the article. For our purpose here, however, the more interesting results are those obtained from the differential indices. In the second column, we present the rate-of-return ratio between the Petro-Core and the 'Petroleum 40-42' group of companies. This ratio is calculated by dividing the net rate of profit on

equity obtained in the Petro-Core, by the matching rate attained by the 'Petroleum 40-42' – the latter being a broader cluster of the world's 40-42 largest non-governmental petroleum companies.<sup>28</sup> The results show that, during the late 1960s and 1970s, despite the competitive assaults from new entrants, the Petro-Core was able to maintain its net rate of return more or less in line with the other oil companies, and that during the 1980s it in fact succeeded in surpassing them. A somewhat similar result is obtained in the third column, where we compare the net rate of return for the Petro-Core with that of US 'big economy', approximated by the Fortune 500 group of companies (see Section 2). Here, too, the large Petro-Core firms exhibit a remarkable staying power, even after the 'OPEC revolution' and the politicization of the Western oil arena. Indeed, despite the wholesale surrendering of concessions, the revoking of some preferential US foreign tax-credits and other adverse consequences of the new oil order, the Petro-Core's rates of return in the 1970s, 1980s and early 1990s were higher than the comparable averages for the US 'big economy' as a whole.

Another way to assess the differential earning power of the large oil companies is by looking at their relative share in the profit of a wider aggregate of companies. This we do in the last three columns, where we compute the share of the Petro-Core in the net profits of the 'Petroleum 40-42' group, the 'Fortune 502' (as defined below) and all US-based corporations. Beginning with the first of these net-profit shares (fourth column), we can see that, despite the Core's relative decline in terms of economic activity (such as concessions, reserves, production, refining, transportation and marketing), its distributive share out of the industry's net profit did not decrease at all. If we consider the world's largest 40-42 petroleum companies as a reasonable proxy for the international non-governmental petroleum industry, then it appears that the share of the Petro-Core in the profits of this group indeed rose – from around three-fifths during the late 1960s and 1970s, to almost three-quarters by the 1980s, and then further, reaching close to four-fifths by the early 1990s.<sup>29</sup> A similar picture emerges when we examine the share of the Petro-Core in the net profit of the US big economy (fifth column). Taking the Fortune 500 group again as our tentative proxy for the big economy, and adding to its ranks the European-based British Petroleum and Royal/Dutch Shell (which are normally excluded from *Fortune's* US listings), we can see that the profit position of the large Petro-Core firms within this modified 'Fortune-502' group has remained surprisingly unassailable. Here we have a longer time series, extending from 1954 to 1991, so the comparison is even more telling. During the late 1950s, when the oil majors were still the undisputed leaders of the international oil industry, the Petro-Core accounted for nearly one-fifth of the net profits earned by the 'Fortune-502' group, but that has hardly changed in the subsequent period when these firms presumably lost their pre-eminence to new

entrants and politicians. The final indication for the enduring power of the Petro-Core is given by their net profit ratio with the US corporate sector as a whole – an index for which data are available since 1930 (sixth column).<sup>30</sup> Following the Achnacharry and Red-Line agreements of 1928, the large international oil companies have consolidated their control over world oil to such an extent, that, in the context of the Great Depression, they managed to appropriate about 9 per cent of all net profits earned by US corporations (inclusive of foreign operations). The economic revival of the Second World War raised overall corporate profits, thus causing the net profit ratio to drop significantly. However, during the 1950s, the ratio began to rise and continued its ascent more or less continuously until, in the 1980s, it surpassed 10 per cent – a level higher than the one recorded in the zenith years of the 1930s!

Clearly, as we move from means to end – that is, from economic activity to differential profitability – the historical picture undergoes a substantial change. What appears as the Petro-Core's relative decline from the point of view of exploration, production, refining and marketing, is not at all that we see when we reach the 'bottom line'. Focusing on the ultimate criteria for business success, as measured by differential rates of return and the distribution of net profits, it appears that the structural transformation of the oil crisis has not spelled the final demise of the major oil companies. Indeed, instead of losing ground, the Petro-Core appears to have held or even consolidated its leading position – relative to other international oil firms, relative to the US big economy, and relative to the US corporate sector as a whole.

### Toward a new oil order

These findings are to some extent puzzling. If, as the statist and liberal perspectives seem to suggest, the large oil companies have been indeed pressured by greater competition and imposing governments, how could they at the same time protect and even enhance their relative profit performance? On the other hand, if we chose to interpret the findings in Table 3 as supportive of the radical position, how should this conclusion be reconciled with the oil firms' apparent loss of autonomy and reduced market share? The resolution of these seemingly opposing developments requires that we separate the *formal* institutional arrangements of the oil industry from its *effective* power structure. Following the line of analysis first anticipated in the wake of the crisis by Blair (1976) and recently summarized by Bromley (1991), one may argue that, while the changes of the 1970s had indeed altered the formal control of oil, the ultimate consequence of this transformation was to consolidate rather than undermine the relative earning power of the large petroleum

companies. A new and apparently more robust *political* order has dawned on the world of oil.

Such an interpretation is of course contingent on how one perceives the nature of competition and pricing in the petroleum industry. Bina (1985), for example, argues that crude-oil pricing is *value* driven. Starting from an orthodox Marxist framework, he suggests that the oil crisis of the 1970s occurred primarily because of a significant rise in the cost of production in the ageing oil fields of the United States. According to his analysis, there was an increase in the labour value of US crude petroleum, and since this coincided with the internationalization of the oil industry, it then led to a rise in the unified world price of crude oil. A rather different view is offered by Adelman (1987), who maintains that the price of oil is driven by market *power*. His argument rests on the observation that the cost of production in the marginal fields in the United States and the North Sea does not exceed \$10 per barrel, whereas in the best areas of the Middle East this could be as low as \$1 or even 25 cents. If the industry was governed by competitive forces (as portrayed in neo-classical manuals), production should have shifted from the high-cost to the low-cost fields, but since that is exactly the opposite of what happened after 1973, the competitive assumption must be rejected. There are two reasons to prefer Adelman's to Bina's framework. One is that, over the last decade, the market price and labour value of oil seemed to have moved in opposite directions. Indeed, contrary to Bina's prediction for further value-driven increases in the market price of oil (Bina, 1985: ix), after the early 1980s the world price of crude petroleum has in fact tumbled, both in nominal and real terms (see Figure 6 below). The second reason has to do with the magnitude and variation of the profit markup. Over the past couple of decades, the price of crude oil fluctuated between \$10 and \$40 per barrel. For the least productive fields, with cost of about \$10 per barrel, this means that the markup of profit over cost oscillated between zero to 300 per cent, whereas in the best regions with cost per barrel as low as 25 cents, it implies a markup ranging between 3,900 and 15,900 per cent! Both the overall magnitudes of these rates, as well as their heightened variability are clearly inconsistent with value-driven pricing.

Note that these observations do not suggest the absence of 'competition', but rather a constant tension between rivalry and cooperation. The circumstances affecting these conflicting forces are continuously changing, and the balance between them – the so-called 'degree of monopoly' – is then revealed through the temporal fluctuations of the profit markup.<sup>31</sup> Indeed, throughout its history, the petroleum industry has been besieged by a fundamental dilemma. On the one hand, each *individual* producer must fight for its market share which in turn implies a constant pursuit of new concessions and reserves. For the industry as

a whole, this usually means a continuous expansion of potential capacity.<sup>32</sup> On the other hand, given the nature of their commodity and the finite size of their market, these companies must constrain their *aggregate* production to 'what the market can bear' – that is, to a level consistent with a positive (and if possible 'optimal') rate of return. The need for concerted action (explicit or implicit) could not be compromised, for, in the absence of output restraint, the price of oil would quickly collapse to the point of zero profit. Judging by its performance, the petroleum industry was generally successful in coordinating its production activity, though, over the years, the institutions underlying this coordination have been radically transformed.

Perhaps the most fundamental aspect of this transformation was the progressive *politicization* of the oil business. While this process was to a large extent continuous, it is nevertheless possible to distinguish between two qualitatively different phases. The first period, roughly until the early 1970s, could be labelled as the 'free-flow' era in world oil – this in the sense that the control of oil was exercised through private ownership with political interference assuming only a secondary role (Turner, 1983: chs 2–3). During the 1920s and 1930s, the international petroleum arena was all but completely dominated by the large companies, particularly British Petroleum, Royal Dutch Shell and Exxon.<sup>33</sup> Over the following three decades, explicit collusion has slowly evolved into a broader system of complex arrangements and understandings – partly overt but mostly tacit – which enabled the large oil companies to maintain their control of production, transportation, refining and marketing around the world (cf. Blair, 1976: ch. 5). However, the Second World War and the ensuing economic boom complicated matters for these firms. First, the substitution of the United States for Britain as the leading Western power upset the internal balance of power among the Seven Sisters in favour of the US-based companies, thus undermining to some extent their previous cohesion. Second, the growing number of independent producers exerted downward pressure on prices, precisely at a time when the rising nationalism in the Middle East and Latin America claimed a larger share of a shrinking markup. Threatened with loss of control, the large oil companies resorted to classic predatory market practices against the independent companies, but much of their response was now becoming dependent on their parent governments, particularly that of the United States. This was manifested in a variety of measures, such as foreign tax credits to offset increases in royalty payments, restrictions on imports into the United States of cheap oil, a CIA-backed coup against a hostile Iranian government and exemption from anti-trust prosecution.

That the large petroleum companies have been able to achieve such 'protection' is not entirely surprising, given their symbiotic relations with

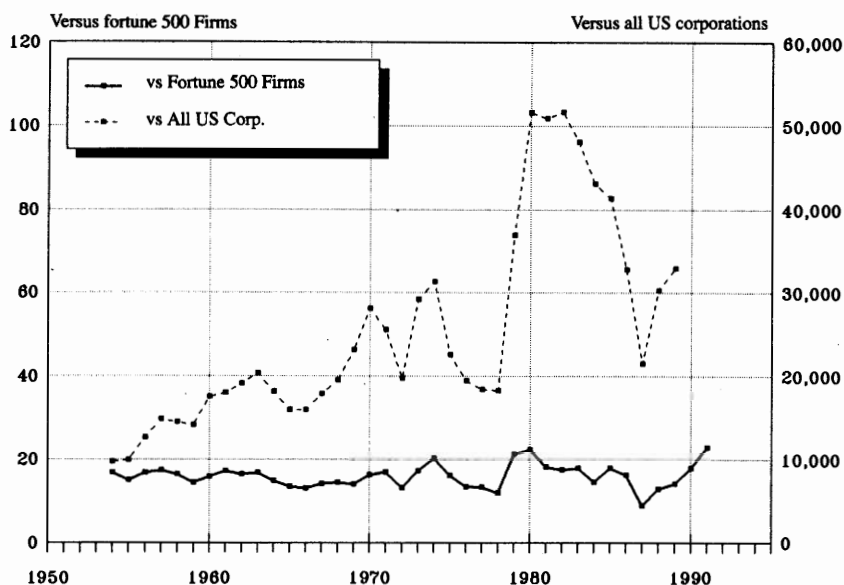


Figure 4 The demise of the Petro-Core? Average profit ratios

Source: For the Petro-Core profit, see Appendix B. Profits for the Fortune 500 are from 'The Fortune 500' (various years). Data for all US corporations are from US Internal Revenue Service, *Statistics of Income, Corporation Income Tax Returns* (various years).

Note: Average profit ratios are derived by dividing the net profit per firm for the Petro-Core by the corresponding figure for the Fortune 500 and for the US corporate sector as a whole.

successive US administrations (cf. Tanzer, 1969; Engler, 1977). Part of this symbiosis is surely rooted in the strategic nature of oil, but that could not be the whole story, since, on many occasions, US energy policy in favour of the large oil firms appeared *contradictory* to the nation's material interest.<sup>34</sup> Staunch defenders of the statist view like Krasner (1978), solved the problem by blaming such policies on the 'nonlogical' behaviour and 'misconceptions' of policy makers (pp. 13-17), but there may be a much simpler explanation. Seen from an 'instrumentalist' perspective, one may equally argue that the oil majors have acquired such a decisive leverage in matters of foreign policy that their well-being was increasingly seen as synonymous with 'national security'. Some indication for the source of this leverage is given in Figure 4. First, we compute the average profit ratio between the net profit earned by a 'typical' Petro-Core firm and the average profit per firm in the Fortune 500 cluster of companies. Then, we provide a broader comparison, contrasting the net profit of a 'typical' Petro-Core firm with

the average net profit per firm in the entire US corporate sector. Looking at the first of these indices, we can see that, over the past four decades, the Petro-Core firms were consistently enjoying earnings roughly fifteen times higher than the big economy's average. The second index reveals a far larger differential, showing that, on average, the net income of a Petro-Core company was *tens of thousands* of times larger than the corresponding earnings of a 'typical' US corporation – and if anything, that this differential position has *improved* over time. Since small firms are usually not organized for collective political action, their fragmented profits – even when very large in the aggregate – endow them with little or no political weight. This leaves much of the political arena open for the large corporations of the big economy, where, by virtue of being the largest profit makers, the oil companies enjoy a notable advantage.

### The era of 'limited flow'

Yet impressive as it may be, the companies' ability to solicit favourable parent-government policies was still insufficient to reverse the onslaught of competitive forces. In retrospect, we can argue that since the 1960s there has been a growing need for 'external' force, a qualitatively new institutional arrangement which would bring crude production back to what the 'market can bear'. Historically, this institutional arrangement appeared in the form of OPEC and the upstream nationalization of crude oil. The broad causes for this transition have long been debated in the literature, but at least one of its consequences is fairly clear. As Adelman (1987) rightly points out, the cartel achieved something which, for political reasons, the oil companies could never have accomplished on their own: a *dramatic* increase in prices. The eighteen-fold rise in the price of crude oil between 1972 and 1982 would have been inconceivable under the 'free-flow' system of private ownership. Rapid increases of such magnitude require not only a tight institutional framework, but also that oil appears to be *scarce* – and given the industry's chronic excess capacity, that could be accomplished only through an exogenously imposed 'crisis'. Such a crisis was possible, however, only within a *new political realignment* and that is precisely what happened: with the nationalization of crude oil, production decisions now moved to the offices of OPEC, thus opening the way for a new, 'limited-flow' regime.

The conventional wisdom is that in shifting the locus of formal control from the companies to OPEC, oil was turned into an inter-state matter to be settled between governments. However, as we already argued, this convention is vulnerable, for if it were true, the large petroleum companies should have withered rather than consolidate their differential profits (see Table 3 above). But there is also another reason. Had the oil companies indeed been displaced by producing countries, their finan-

cial performance should have diverged from OPEC's; the evidence, however, indicate that they have in fact converged!

The 'limited-flow' era enriched the OPEC countries, but as we can see from Figure 5, that did not come on account of the oil companies. The figure contrasts the value of crude oil exports from OPEC countries ( $OPEC_{cox}$ ) with the net profit earned by the Petro-Core ( $PC_{np}$ ), showing a rather remarkable positive correlation between them. Estimating a simple OLS regression between these variables for the 1960–91 period, we get (*t*-statistics in brackets):

$$PC_{np} = 3635.0 + 0.067 OPEC_{cox} \quad R^2 = 0.74$$

(4.21)            (9.27)

Taken in a straightforward way, these estimates suggest that a one dollar change in exports brought a corresponding 6.7 cents change in the companies' net profit, and that changes in the value of exports accounted for almost three-quarters of the squared variations in profits. This historical record should be interpreted with care, however. On the face of it, one may be tempted to infer that, by bringing much higher prices, OPEC was instrumental in boosting the sagging performance of the large oil firms. But causality seems to run both ways. While OPEC was providing the pretext for the crisis, there was still the need to coordinate output – and that it could not do on its own. As Blair (1976: 289–93) and Turner (1983: 90–7) correctly indicate, managing the immense complexity of the oil arena requires an overall knowledge which the OPEC countries lacked and which could be supplied only by the oil majors: the latter were of course no longer controlling output directly as producers, but they were now doing so indirectly, as the largest buyers, or 'offtakers' of crude petroleum. Interestingly, the rationale for this new alliance was delineated already in 1969 by the Saudi petroleum minister, Sheikh Yamani. 'For our part', he stated, 'we do not want the majors to lose their power and be forced to abandon their role as a buffer element between the producers and the consumers. We want the present setup to continue as long as possible and at all costs to avoid any disastrous clash of interests which would shake the foundations of the whole oil industry' (cited in Barnett, 1980: 61). There emerged, then, a new and more sophisticated realignment. The oil companies may have given up formal control but, within the new order, that was largely in return for higher profits. Perhaps the most striking expression of this 'tradeoff' is the experience of British Petroleum. The 1979 revolution in Iran deprived BP from access to 40 per cent of its global crude supplies, yet in that very year, its profits soared by 296 per cent – more than any other major company! (Turner, 1983: 204; Yergin, 1991: 684–7; 'The Fortune 500', 1978, 1979).



## THE WEAPONDOLLAR–PETRODOLLAR COALITION

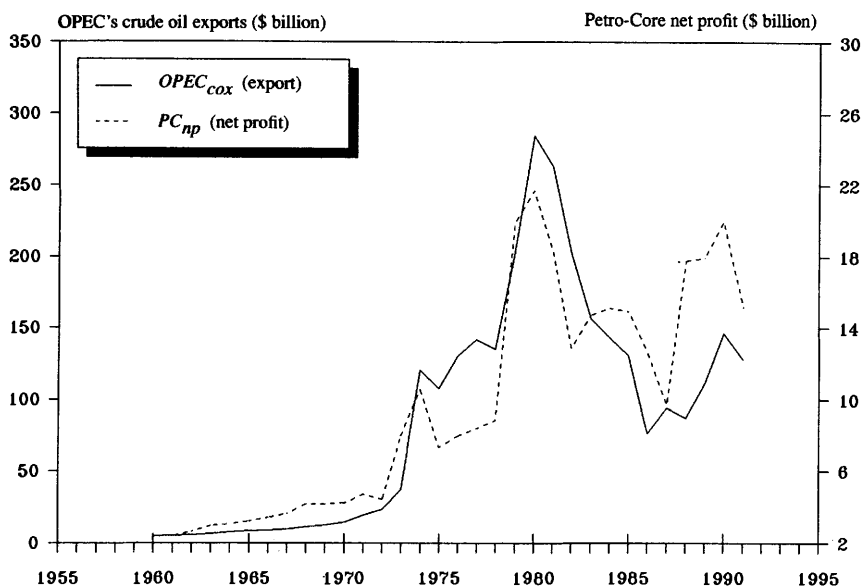


Figure 5 OPEC and the Petro-Core: conflict or convergence?

Source: OPEC's crude oil exports are from *OPEC Annual Statistical Bulletin*, 1989 and 1991. For the net profit of the Petro-Core, see Appendix B.

The convergence between OPEC and Western interests has long been suspected. On the eve of the first oil crisis, for example, Dan Smith suggested in an *Economist* survey titled 'The phony oil crisis' (7 July 1973, pp. 7–38) that the American Administration may have supported OPEC's drive toward higher prices as a means of slowing down the Japanese economy (see also Terzian, 1985: 188–202; Anderson and Boyd, 1984: chs 9–11). Another possible reason why the US government 'capitulated' and accepted separate negotiations leading to the Teheran and Tripoli Agreements of 1971, was that the large oil companies saw these as a necessary means of eviscerating the rising independents (Blair, 1976: ch. 9). In the words of Odell (1979: 216), there arose in the early 1970s an 'unholy alliance' between the large international oil companies, the United States and OPEC which sought to use higher prices as a way of boosting company profits, undermining the growth of Japan and Europe and fortifying the American position in the Middle East. To these, Sampson (1975: 307) also added the eventual support of the British government, the Texas oil lobby, the independents, investors in alternative sources of energy and the conservationists – all with a clear stake in a more expensive oil.

In a way, then, the oil arena has evolved in a direction opposite to that of the armament industry. While the military sphere of domestic spending and arms exports has been increasingly *commercialized*, the petroleum industry was becoming progressively *politicized*, both at its downstream and upstream segments. But as we have shown, this has not implied the demise of the large oil companies. Instead, the growing politicization of oil seems to have become a *prerequisite* for their survival. The relentless search for new reserves and the incessant proliferation of technology created a constant menace of excess capacity and falling prices. With a growing number of actors, counteracting this threat solely via corporate collusion became increasingly difficult and, so, eventually, the large companies had to integrate their private interests into a much broader political framework.

## 5 THE 'WEAPONDOLLAR-PETRODOLLAR COALITION' AND MIDDLE EAST 'ENERGY CONFLICTS'

The discussion so far suggests that, toward the beginning of the 1970s, several groups of large US-based firms saw their interests converging in the Middle East. The first of these groups included the large weapon makers of the Arma-Core who turned to the Middle East in search for export markets. The second cluster comprised the leading oil companies of the Petro-Core (including its European-based members), now driven toward a broader alliance with the OPEC countries. These were subsequently joined by a second tier of interested parties, including engineering companies such as Bechtel and Fluor whose best contracts were increasingly those coming from the oil regions, and large financial institutions with a growing reliance on oil-related deposits and loans. Each of these groups stood to benefit from higher oil prices, but since none could have achieved this on its own, the solution arose through a 'Weapon-dollar-Petro-dollar Coalition' between them. In what follows, we argue that, whether deliberate or not, the actions of these groups helped perpetuate a dynamic interaction between energy crises and military conflicts. In this process of 'energy conflicts', the ongoing militarization of the Middle East and periodic outbreaks of hostilities contributed toward an atmosphere of 'oil crisis', leading to higher prices and larger oil revenues, which in turn helped finance new weapon imports, thus inducing a renewed cycle of tension, hostilities and, again, rising energy prices.

Our analysis of this interaction proceeds in several steps. Given the pivotal role of oil prices, we begin with the issue of how they are determined – particularly in the context of Middle East instability. Next, we consider the (non-trivial) effect of crude oil prices on OPEC's oil exports and the oil companies' profits. From this we then move to examine the way in

which changes in Middle East oil revenues affected the inflow of arms imports. The effect of regional conflicts on the Arma-Core differed from their impact on the Petro-Core. Weapon makers (both in the US and elsewhere) had an obvious interest in continuous militarization which contributed to their current and future profits. The position of the oil companies, on the other hand, was somewhat more complicated. On the one hand, higher conflict-driven prices tended to boost current profits, but on the other they also induced long-term economic and political changes which could then undermine future earnings. For this reason, one might expect that the oil companies' support for militarization be more qualified than that of the arms contractors. This asymmetry is perhaps best illustrated in reference to the occurrence of major 'energy conflicts' to which we turn in the last part of this section. Assuming that the armament corporations were generally supportive of regional conflicts, the overall position of the Weapondollar-Petrodollar Coalition should have then hinged on the particular stance taken by the oil majors. Specifically, we would expect the Coalition to be divided when the oil companies are doing relatively well, but unified in favour of conflict when oil profits are down. And, indeed, this hypothesis seems consistent with the data. Using the differential profit position of the Petro-Core as a proxy for its stance toward 'energy conflicts', we find this to be a surprisingly accurate predictor for the outbreak of Middle East hostilities.

### Scarcity, anxiety and the price of oil

The common perception is that, in one way or another, the price of crude petroleum depends on its underlying 'scarcity'. From this vantage point, it is then often argued that OPEC's early success hinged on rapid Western growth and the consequent buildup of 'excess demand' for oil during the 1960s and 1970s. Similarly, the cartel's difficulties since the early 1980s are often associated with lower industrial growth and improved energy efficiency which exacerbated the spectre of 'excess supply'. Despite its popularity, however, this view is vulnerable on several grounds.

First, there are conceptual problems. The notion that prices are affected by 'scarcity' is meaningful when supply is limited by natural or technological circumstances, but that has not been the case in the oil industry. From a long-term perspective, the relevant proxy for scarcity is the ratio of proven reserves to current production. Over the past quarter century, this ratio rose by a quarter – from about 30 production years in the mid-1960s, to over 40 production years by the early 1990s<sup>35</sup> – and according to the 'scarcity thesis', this should have brought prices down. However, the facts of the matter are that, in the late 1980s and early 1990s, the real price of crude oil was three to four times *higher* than what it was in the 1960s (see Figure 6 below) – an increase which must hence be ascribed to

institutional factors. The concept of scarcity is not much more meaningful in the context of short-term fluctuations. The problem here arises because the oil industry commonly operates far below capacity (as given by available facilities and technological know-how), so to the extent that prices do respond to the 'shortfall' in supply, the relationship must be attributed, at least in part, to the collusive behaviour of sellers.

The second problem with the 'scarcity thesis' is that there is very little in the way of empirical evidence to support it. To illustrate these difficulties, we contrast in Figure 6 the real price of crude oil (denominated in constant 1987 dollars) with the relative excess of global consumption over global production (measured as a per cent of the average of the two). The latter variable reflects changes in inventories, with negative values representing a buildup and positive values denoting depletion. Now, if excess consumption indicates a 'shortage' caused by insufficient output, and excess production represents the arrival of 'distress oil' and thus a condition of 'glut', then we should expect prices to rise in the former case and fall in the latter. This, however, is not what we see in the chart. In fact, the historical comparison does not betray any systematic relationship between 'scarcity' and price movement. During the 1960s, there was an ongoing erosion in the real price of crude oil which appears consistent with the persistent buildup of inventories over the same period. Yet, this very situation was also the backdrop for the price explosion of the early 1970s! The average real price of oil climbed by 20 per cent in 1971, 10 per cent in 1972, 34 per cent in 1973, and then by 233 per cent in 1974 – but contrary to the excess-demand rationale, the figure shows that these increases were accompanied by *rising*, not falling inventories.<sup>36</sup> Indeed, according to Blair (1976: 266–8), the crisis could have had nothing to do with any real shortage of oil, simply because there was no such shortage to begin with. Early in 1973, the ARAMCO companies were explicitly warned by Saudi Arabia of a pending Egyptian attack on Israel and the possible use of the oil weapon (see also Sampson, 1975: 244–5). Anticipating the consequences, they raised production in the first three-quarters of the year and that fully compensated for the eventual drop in the last quarter. All in all, OPEC production for 1973 amounted to 11.0 billion barrels, which was in fact slightly higher than the 10.8 billion it should have been based on long-term projections! (Blair, 1976: 266 fn). The apparent lack of any clear relationship between scarcity and price movement continued throughout the 1970s and 1980s. Between 1975 and 1978, the difference between production and consumption fluctuated widely, but that seemed to have little or no bearing on the real price of oil. On the other hand, production exceeded consumption in both 1979 and 1980, but instead of bringing a price decline, this was associated with a second price explosion, with the real price of oil rising by 25 per cent and 52 per cent,

## THE WEAPONDOLLAR-PETRODOLLAR COALITION

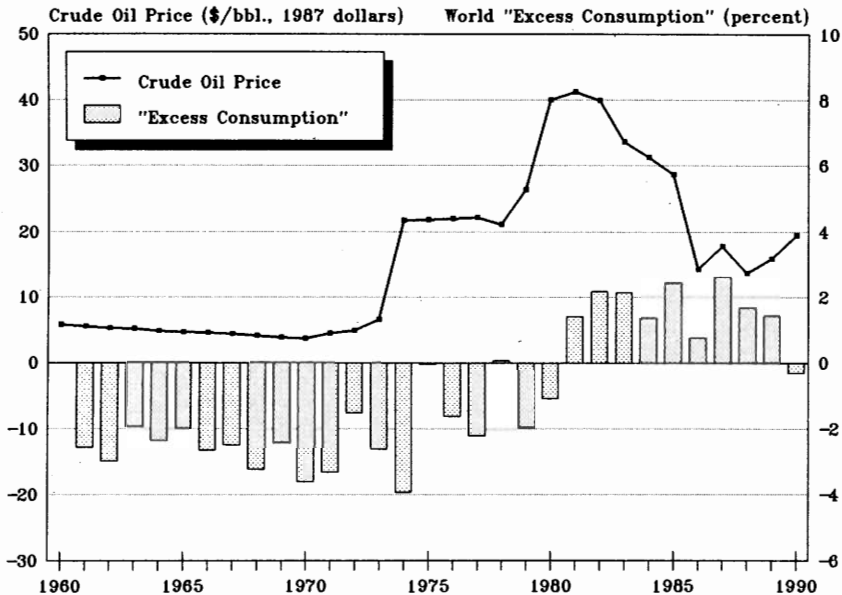


Figure 6 'Scarcity' and the real price of oil

Source: Crude oil prices are from the IMF's *International Financial Statistics Yearbook*, 1986, pp. 170-1; 1991, p. 179. GDP price deflator is from US Congress, *Economic Report of the President* (1993), Table B-3, p. 352. Data for world production and consumption of crude oil are from *BP Statistical Review of World Energy* (various years).

Note: Crude oil prices for 1960-84 are given by the price of Saudi Arabia Light (Ras Tanura), and for 1985-90 by the average world spot price. The 'real' price of oil is obtained by dividing the nominal figures by the US GDP implicit price deflator. 'Excess consumption' and production of crude oil, divided by the average of the two.

respectively. Finally, during the 1980s there was a progressive depletion of inventories, yet that was correlated initially with rapidly declining and then stagnating prices. The Gulf Crisis of 1990/91 brought a substantial rise in prices which at one point reached \$40 per barrel (current dollars), but never during that period was there any meaningful shortage of oil, as Saudi Arabia and the oil companies offset the shortfall from Iraq and Kuwait.<sup>37</sup> One may correctly argue, of course, that the difference between consumption and production is not necessarily a very good proxy for excess demand. Strictly speaking, demand is given by the sum of consumption and the desired change in inventories, so excess demand should be approximated not by the overall change in inventories, but rather by the *undesired* part of that change. Unfortunately, the latter is not an observable quantity, which tends to further weaken the practical usefulness of excess demand and supply explanations.

Finally, even if we choose to neglect these problems, the divergencies between production and consumption seem too small to warrant the dramatic price variations of the last two decades. Looking at the relative magnitude of production and consumption in Figure 6, we can see that, since the early 1960s, the average difference between them was less than 2 per cent above or below the overall volume of world output. But then there arises the question of how could such relatively insignificant discrepancies account for dramatic real-price fluctuations of tens or even hundreds of per cent per annum?

The solution for these perplexities lies in a reinterpretation of 'scarcity'. As a speculative commodity, the price of crude petroleum depends not only on the relationship between *current* production and consumption, but also – and often much more so – on *future* expectations. The prices buyers are willing to pay depend not only on present energy needs and the cost of alternative substitutes, but also on expected future prices. Similarly, sellers (both individually and as a group) are constantly weighing the tradeoff between present incomes and anticipated but unknown future revenues. Moreover, these factors are not independent of each other. Indeed, buyers' willingness to pay is often affected by the apparent resolve of sellers, which is in turn influenced by the extent of consumers' anxiety. Once acknowledged, such intricacies imply that a given consumption/production vector can be associated with a host of different prices, depending in a rather complex way on the nature of future expectations.

The significance of these considerations could hardly be overstated. To illustrate this, consider the fact that after the emergence of OPEC, the number of primary industry players has grown appreciably – from less than a dozen in the 1960s, to over 150 by the late 1970s, according to one estimate (Odell, 1979: 182) – and that still without counting governments. Such multiplicity should have undermined the industry's ability to coordinate output, but that is not what arises from our analysis in this and the previous section. Indeed, if we were to judge on the basis of OPEC's revenues and the companies' profits (see Table 3 and Figure 5), it would appear that collective action was in fact more effective with hundreds of participants during the 1970s and 1980s, than with only a handful before the onset of the crisis! The reason for this apparent anomaly is that, in the final analysis, the price of oil – on the open market but also between long-term partners – depends not only on the ability to limit current output to 'what the market can bear', but also on the nature of *perceived* scarcity associated with 'external' circumstances. We submit that, since the early 1970s, the single most important factor affecting these perceptions was the *vulnerability* of Middle East supplies.

The importance of Middle East oil is not new, of course, but this significance has increased substantially since the Second World War,

## THE WEAPONDOLLAR-PETRODOLLAR COALITION

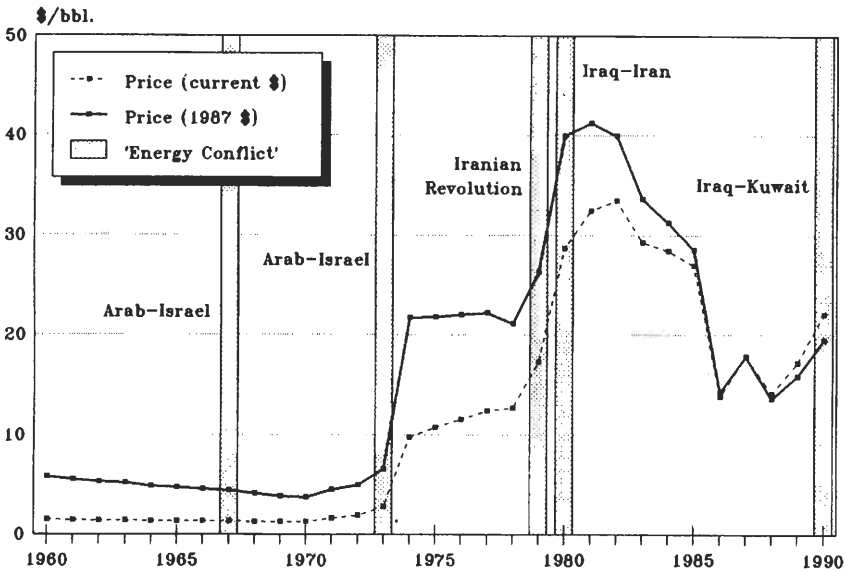


Figure 7 Crude oil prices (annual average)

Source: See Figure 6.

Note: Crude oil prices for 1960–84 are given by the price of Saudi Arabian Light (Ras Tanura), and for 1985–90 by the average world spot price. The ‘real’ price of oil is obtained by dividing the nominal figures by the US GDP implicit price deflator.

particularly since the 1960s. In 1972, on the eve of the first oil crisis, the region accounted for 36 per cent of the world’s total production and 62 per cent of its proven reserves, up from 12 per cent and 42 per cent, respectively, in 1948.<sup>38</sup> But as they were becoming more crucial, the region’s oil supplies were also growing more vulnerable. The oil ‘prize’ acted like a magnate, turning the Middle East into a focal centre of super-power confrontation, and together with rising nationalism, this brought instability and armed conflict. The consequences for oil were twofold. First, the region’s ongoing militarization since the late 1960s has created a constant threat for *future* energy supplies, which helped maintain prices even in the absence of tight producer coordination. Second, the occasional outbreak of a major conflict tended to trigger an atmosphere of *immediate* ‘energy crisis’, with the effect of inducing confident sellers to demand and fearing buyers to accept much higher prices. The potential significance of these factors is suggested in Figure 7, where we relate the price of crude oil (in current and constant dollars) to the outbreak of major ‘energy conflicts’. The chart indicates that since 1973 it was open hostilities which perhaps more than anything else affected the

course of oil prices. Despite the absence of any real shortage, the onset of these wars generated a crisis atmosphere which was sufficient to create a *fear* of shortage and cause prices to rise. Similarly, the diffusion of a 'crisis' – either at the end of a war, or when it became clear that its continuation posed no danger to the flow of oil – the price began to stagnate or fall. These aspects of the 'limited-flow' regime have been so thoroughly institutionalized, that they eventually became embedded in common jargon: the industry's 'price consensus' now customarily incorporates, in addition to its 'peacetime' basis, also such items as 'embargo effects' and 'war premiums'.<sup>39</sup> The precise magnitude of such premiums cannot be easily determined, of course, but their significance seems beyond dispute.

### Oil prices, oil revenues and oil profits

How have higher crude oil prices affected the fortunes of OPEC and the oil companies? The answer to this question is not as trivial as it may initially appear. First, in the case of OPEC, the value of oil exports is given by the product of quantity and price, so this value should be positively correlated with prices only to the extent that the demand for OPEC's oil is price-inelastic.<sup>40</sup> Second, for the integrated oil companies, there is the added complication that profits in downstream operations are affected negatively by an increase in the price of crude oil inputs. As a consequence, the relationships between oil prices and oil earnings have not always been positive; it was only with the energy crises of the last quarter century that higher crude oil prices seem to have had a net positive effect on both OPEC's exports and the companies' profits.

This impact is illustrated in Figure 8, where we contrast the world price of crude oil on the horizontal axis, with the value of OPEC's oil exports and with the net profits of the Petro-Core both on the vertical axis (all in logarithmic terms). The data clearly demonstrate the shift which occurred toward the early 1970s from a 'free-flow' to a 'limited-flow' regime. For OPEC, oil exports were negatively correlated with oil prices until 1970, and positively correlated with them thereafter – a pattern which is similarly replicated in the relationship between oil prices and the net profits of the Petro-Core. During the 1960s, oil prices were generally falling, but given the rapid expansion in the demand for crude oil and petroleum products, OPEC's exports and the companies' profits were nevertheless rising. However, since such increases were inherently limited by the expansion in consumption, faster income growth could have been achieved only with a new era of crisis and much higher prices. And as we can see, since 1970, the price of crude oil became a prime determinant of both OPEC's exports and the companies' profits. Of course, neither of these groups was necessarily interested in the



## THE WEAPONDOLLAR-PETRODOLLAR COALITION

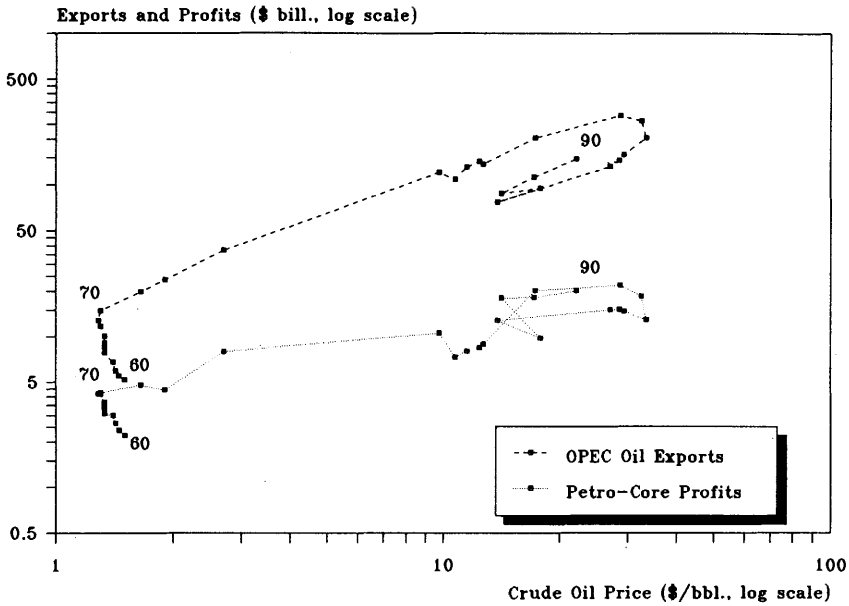


Figure 8 From a 'free flow' to a 'limited flow': oil prices, exports and profits, 1960-90

Source: Crude oil prices are from the IMF's *International Financial Statistics Yearbook*, 1986, pp. 170-1; 1991, p. 179. OPEC's crude oil exports are from *OPEC Annual Statistical Bulletin*, 1989 and 1991. For net profit of the Petro-Core, see Appendix B.

Note: Crude oil prices for 1960-84 are given by the price of Saudi Arabian light (Ras Tanura), and for 1985-90 by the average world spot price.

highest possible prices. Indeed, in the long run, expensive oil encourages energy conservation and improved energy efficiency, diverts attention to alternative energy sources and lowers entry barriers into the industry. More broadly, excessively high prices may lead to an unfavourable political climate in Western countries which can then undermine the subtle relationship between OPEC and the oil companies. But to the extent that OPEC and the companies *did* seek to raise their current exports and profits, this was now dependent on higher conflict-driven prices. Similarly, when lower conflict premiums brought the price of crude oil down, they also reduced the magnitude of oil exports and profits.

### From oil exports to arms imports

The link from tension and conflict to larger oil revenues and profits was not unidirectional, however. Reversing the sequence, we can equally argue that higher petroleum exports helped finance military imports,

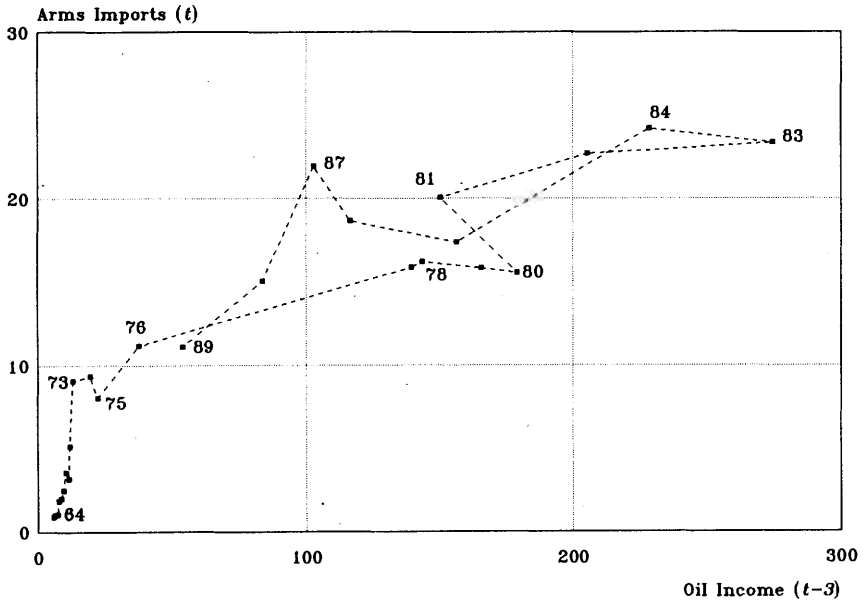


Figure 9 Middle East oil income and arms imports, 1964–89 (\$ billion, 1987 prices)

Source: Middle East income for the 1964–78 period is computed from American Petroleum Institute data (as reported in Bina, 1985, Table 27, pp. 131–2) and from *BP Statistical Review of World Energy* (various years); for the 1979–89 period, income is assumed equal to the region's oil exports, taken from the *U.N. Statistical Yearbook* (various years). Arms imports are from the US Arms Control and Disarmament Agency, *World Military Expenditures and Arms Trade* (various years). Both current price series are deflated by the US GDP price deflator from US Congress, *Economic Report of the President*, 1993, Table B-3, p. 352.

thus further fuelling the regional arms race. This side of the oil–arms interaction is examined in Figure 9 and Table 4. In the chart, we contrast the annual value of arms-import deliveries to the Middle East with the region's aggregate oil income three years earlier (both in constant dollars). The reason is that current oil income bears on the value of current military *contracts*, but the weapons are usually *delivered* later, with an average lag of about three years. The association depicted here is very clear. During the period until the late 1960s, there was a slow advance of oil incomes and only a marginal increase in arms imports. Both superpowers were still preoccupied with Europe and the Far East, and their limited weapon shipments to the Middle East were largely in the form of military assistance. But since the early 1970s, with the increasing commercialization of arms exports and the growing focus on Middle Eastern purchasing power, things began to change. In retrospect, we can see how during the next two decades arms imports to the region

– from the two superpowers as well as numerous other suppliers – were increasingly financed by oil exports, and with a rather startling regularity.<sup>41</sup>

The relationship between arms imports and oil incomes over the 1964–89 period could be expressed in the form of two alternative linear models. such that

- $$(1) \text{ arms imports}_t = \alpha_1 D64-72_t + \alpha_2 D73-89_t + \beta_1 D64-72_t \text{ oil income}_{t-3} + \beta_2 D73-89_t \text{ oil income}_{t-3} + u_t$$
- $$(2) \ln \text{ arms imports}_t = \tau_1 D64-72_t + \tau_2 D73-89_t + \delta_1 D64-72_t \ln (\text{oil income})_{t-3} + \delta_2 D73-89_t \ln (\text{oil income})_{t-3} + v_t$$

where *arms imports* denotes the aggregate dollar value of arms flowing into the Middle East, *oil income* is the aggregate income from the region's petroleum exports, *D64–72* is a dummy variable which is equal to unity between 1964 and 1972 and zero thereafter, *D73–89* is a complementary dummy which is equal to zero between 1964 and 1972 and one afterward,  $\{\alpha_i\}$ ,  $\{\beta_i\}$ ,  $\{\tau_i\}$  and  $\{\delta_i\}$  are unknown parameters to be estimated, and *u* and *v* are unknown error terms.

The first model expresses arms imports as a function of lagged oil income (both in constant dollars), with slope coefficients denoting estimated marginal propensities to import arms from oil income. The second model is estimated using natural logarithms for the two variables, so the coefficients approximate the oil income elasticity of arms imports. In both cases, we identify 1972/73 as denoting a structural change in the underlying relationship, associated with the shift from the relatively tranquil 'free-flow' regime of world oil, to the 'limited-flow' era of armed conflict and energy crises. Given this change, we use dummy variables to estimate the intercepts and slope parameters twice – initially for the 1964–72 period and then for 1973–89.

Regression results for the two models are given in Table 4. In the first period, between 1964 and 1972, oil income seemed to have had a large impact on arms imports. Taken at face value, the estimates indicate that almost 61 per cent of the region's additional oil income went to the purchase of imported arms, with a 1 per cent rise in that income bringing three years later a 2.3 per cent increase in arms shipments (these estimates are probably overstated since part of the weaponry was delivered as aid). During the second period, from 1973 to 1989, the rise in oil incomes prompted a general increase in the demand for commodities, so arms sales to the region now had to compete with imported civilian goods. This brought a substantial decline in the parameters: the propensity to purchase arms from additional oil income fell to about 6 per cent,

Table 4 OLS estimates for the determinants of Middle East arms imports (annual data, 1964–89)

| Independent variable                               | Dependent variable        |                                |
|--|---------------------------|--------------------------------|
|  | arms imports <sub>t</sub> | ln (arms imports) <sub>t</sub> |
| D64–72 <sub>t</sub>                                | -2,872.1<br>(0.90)        | -12.95<br>(6.67)*              |
| D73–89 <sub>t</sub>                                | 9,030.6<br>(8.77)*        | 5.74<br>(11.93)*               |
| D64–72 <sub>t</sub> oil income <sub>t-3</sub>      | 0.606<br>(1.68)           |                                |
| D73–89 <sub>t</sub> oil income <sub>t-3</sub>      | 0.058<br>(8.15)*          |                                |
| D64–72 <sub>t</sub> ln (oil income) <sub>t-3</sub> |                           | 2.28<br>(10.58)*               |
| D73–89 <sub>t</sub> ln (oil income) <sub>t-3</sub> |                           | 0.34<br>(8.14)*                |
| R <sup>2</sup>                                     | 0.93                      | 0.98                           |
| Adj. R <sup>2</sup>                                | 0.92                      | 0.98                           |
| F-statistics                                       | 100.234                   | 393.157                        |
| DW   | 1.45                      | 1.94                           |

Note: *t*-statistics are in brackets; for data sources, see Figure 9.

\*  $P < .001$  (two-tailed test)

and the oil-elasticity of arms imports declined to 0.34. Relative to the pre-1973 period, the new relationship meant that the same increase in military imports now required a much *larger* increase in oil revenues – and that is exactly what happened. The absolute changes in oil income became far greater, causing arms imports to rise rapidly until 1983, and then fall substantially with declining revenues thereafter.

Perhaps the most remarkable thing about these regressions, however, is their ‘explanatory power’, particularly for the post-1973 period: as it turns out, knowing the oil income of Middle East countries is almost all we need in order to predict the overall value of arms deliveries three years later!<sup>42</sup> Arms deliveries into the region were of course affected by numerous factors – domestic tensions and inter-country conflicts, super-power policies to protect and enhance their sphere of influence, and the evolution of domestic arms production, to name only a few. Furthermore, some arms deliveries were financed by aid or loans, so their importation was not directly dependent on oil revenues. Yet, based on our results, it would seem that these factors were either marginal, or themselves corollaries of the ebb and flow of the ‘great prize’ – oil.

**Differential accumulation and the outbreak of  
'energy conflicts'**

We have now reached the final step of our journey, ready to move from means to ends. Our method in this exploration was to progressively distil the interactive purchases and sales of oil and arms down to their primal driving force – that is, to the differential accumulation of capital by the Weapondollar–Petrodollar Coalition. The task now is to formulate the general contours of this process. In doing so, it is convenient, at least for the time being, to leave the state and foreign policy out of the picture and focus solely on the large firms. The question then is twofold. First, assuming that these companies behaved as 'rationale actors' engaged in collective action, how would their quest for differential accumulation bear on the mechanism of Middle East militarization and 'energy conflicts'? And, second, is this mechanism consistent with the historical record? We turn to deal with these questions now.

The large oil companies and the leading arms makers both gained from Middle East 'energy conflicts' – the first through higher conflict premiums and the latter via larger military orders. But beyond this common interest the positions of these groups differed in certain important respects. For the Arma-Core, the benefits from conflict would come in two stages: initially in the form of pre-conflict military buildups and subsequently through the positive effect on future arms deliveries of higher conflict-driven petroleum revenues. Furthermore, as long as the arms sellers succeeded in avoiding price competition (as they did until the early 1990s), the 'demand-pull' increase in deliveries would be accompanied by a rise in the price of weapon systems, thus further augmenting the value of arms exports.<sup>43</sup> Overall, 'energy conflicts' tended to boost arms exports both in the short-run and long-run, and given that the weapon makers have had an open-ended interest in such sales (Brzoska and Ohlson, 1987: 54), their support for these conflicts should have been more or less unqualified.<sup>44</sup>

For the Petro-Core, however, the calculations are probably more subtle. As we argued above, the effect on their profits of higher war-premiums would be positive only up to a certain point. Furthermore, the outcome of regional conflicts is not entirely predictable and carries the inherent danger of undermining their intricate relations with host governments. For these reasons, we should expect the large oil companies to have a more qualified view on the desirability of open Middle East hostilities. Specifically, as long as their financial performance is deemed satisfactory, the Petro-Core members would prefer the status quo of tension-without-war. When their profits wither, however, the companies' outlook is bound to become more hawkish, seeking to boost income via a conflict-driven 'energy crisis'.

Now, if capital accumulation is indeed the fundamental driving force lying at the root of both global business and international politics, then we should expect events in the Middle East to mirror these dynamics. In general, the Weapondollar–Petrodollar Coalition converged around the common interest of higher oil prices. The mechanism of achieving this involved the *ongoing militarization* of the Middle East and that was supported by all members of the Coalition, particularly since the early 1970s. When it came to *open military hostilities*, however, the Coalition's stance was not always unanimous. The Arma-Core members were generally in favour, but given the contingent outlook of the Petro-Core, a unified support for conflict depended crucially on the profit performance of the large oil companies.

And indeed, these speculations receive an astounding confirmation from the unfolding of events over the past quarter century. An overview of these events is provided in reference to Figures 10a and 10b. Underlying the logic of these charts is again the emphasis on *relative business performance*. To reiterate, in the context of large-scale business enterprise, the quest for power is commonly incarnated in the goal of *differential pecuniary accumulation*, which in turn dictates a constant attempt to exceed the so-called 'normal' rate of return. Within the big economy, this 'normal' usually means the average recorded by some well-publicized index, such as the Fortune 500 listing. The owners and managers of the large firms – including the major oil companies – continuously weigh their own rate of profit against this or similar average. The result of such comparisons constitute the final yardstick for success – or in the case of failure, a signal for remedial action. With this in mind, our analysis below focuses on contrasting the net rate of return on equity for the Petro-Core with the corresponding rate recorded by the Fortune 500 group of companies.

This differential process is reproduced in Figure 10a, where we chart the Petro-Core performance against that of the Fortune 500 over the 1966–91 period. Particularly significance are the dark areas which denote incidences when the rate of return for the Petro-Core fell short of the Fortune 500 'normal'. In Figure 10b, we present an alternative display of these data – by computing the difference between the Petro-Core and Fortune 500 rates as a percentage of the latter. Here, too, we darken those years in which the oil companies' performance was inferior to their Fortune 500 benchmark. Our hypothesis in looking at these charts is simple. As long as the Petro-Core's rate of return exceeds the big economy's average, the oil companies' performance will appear satisfactory or even superior, leading to a moderate stance on Middle Eastern affairs. When their performance falls below the 'normal', however, we enter the so-called 'danger zone': for the Petro-Core, the status quo of non-violent tension is no longer sufficient and open hostilities become

THE WEAPONDOLLAR-PETRODOLLAR COALITION

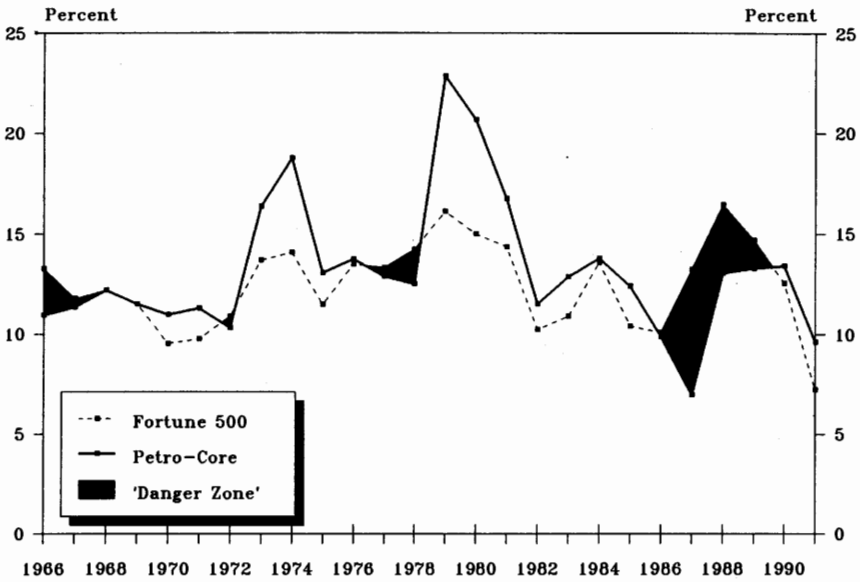


Figure 10a Rate of return on equity: the Fortune 500 and Petro-Core, 1960-91

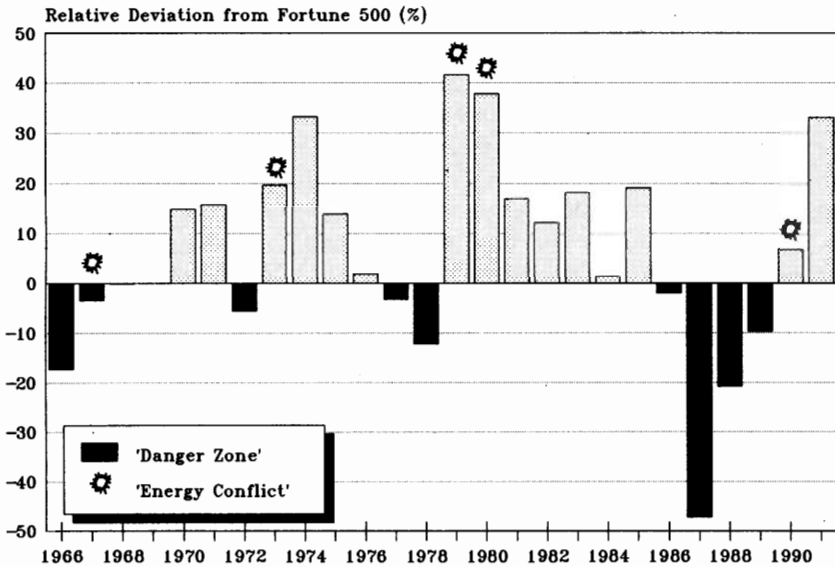


Figure 10b Petro-Core profit differentials and Middle East 'energy conflicts'

Source: For the Petro-Core profit, see Appendix B. Profits for the Fortune 500 are from 'The Fortune 500' (various years).

increasingly appealing. This shift brings the entire Weapondollar–Petrodollar Coalition into a unified focus in favour of a new ‘energy conflict’.

Examining the two charts, three unbroken regularities become apparent. First, we can see that since the mid-1960s *every* ‘danger zone’ was followed by an outbreak of Middle East ‘energy conflict’ (designated by an ‘explosion’ symbol in Figure 10b). Thus, in 1966, the performance of the Petro-Core fell below that of the Fortune 500, which was then followed by the Arab–Israeli War of 1967. The Petro-Core entered the ‘danger zone’ again in 1972, and that was followed by the Arab–Israeli War of 1973. The next ‘danger zone’ developed in 1977 and 1978, followed by the Iranian Revolution and hostage crisis of 1979, and then by the Iraq–Iran War which began in 1980. The most recent ‘danger zone’ opened in 1986, followed by the intensification of the Iraq–Iran War and eventually culminating in the Gulf War of 1990/91. The second observation is that subsequent to the outbreak of *each* of these conflicts, the Petro-Core’s rate of return moved to surpass or at least match the Fortune 500 average. And, finally, we can see that *no* ‘energy conflict’ erupted without the Petro-Core first falling into a ‘danger zone’.

## 6 CONCLUDING COMMENTS

Given the complexity of Middle Eastern affairs, these regularities appear almost too systematic to be true. Indeed, is it possible that the differential rate of return of six oil companies is all that one needed in order to predict such major upheavals as June 1967 War, the Iraq–Iran conflict or the Iraqi invasion of Kuwait? And what should we make of the notion that Middle East conflicts were the main factor ‘regulating’ the differential accumulation of the Petro-Core? Finally, are lower-than-normal earnings for the oil majors indeed a necessary condition for Middle East energy wars? Maybe the picture emerging from data in Figures 10a and 10b is more of a coincidence, a statistical mirage with little relevance to the underlying events?

The answers to these questions are not simple and for a very good reason. In the *social* sciences, a hypothesis or ‘model’ is much like a ‘condensed narrative’, a short story bursting out of a voluminous novel with endless interactions and multilayer plots. However, as Carr (1961: ch. 1) rightly argues, the particular way in which this story is told, the choice of actors and the choreography of events, are not really open to objective assessment. Much like theatre, human history – whether we call it ‘literature’, ‘political economy’, or ‘international relations’ – has very few objective rules, and its subject and method are often dictated by convention and fashion.



The hypotheses presented in this paper are not free of such biases. Nevertheless, these hypotheses are neither deductive, nor rooted in a fictitious framework. They emerge from a systematic attempt to confront the varied interpretations and perspectives written over the years into the historical Rashomon of the Middle East. Our own version offers a series of short, somewhat violent stories which focus on a process and actors that until now have been marginalized by the mainstream of international political economy – the *accumulation of capital* and the *multi-national corporation*.

The interaction of weapondollars and petrodollars in the Middle East provides an interesting insight into the growing welding of global politics and business. Arms exports, which were previously used as a primary foreign policy tool, have undergone a gradual *commercialization*, whereas oil imports, which hitherto belonged to the business sphere, have been increasingly *politicized*. The process unifying these two spheres is the quest for power via *differential capital accumulation*. The various indices of differential accumulation are not mere theoretical constructs, but rather a primary focus of both business and government managers. Indeed, it is through the differential pace of accumulation – the growth of one's own profits relative to the average or 'normal' – that global politics and business are now increasingly evaluated. With time, as the means of economic and political power grow more sophisticated, the indices of power become more abstract – eventually reduced to feeble electronic signals flickering on computer screens. But that only hastens their standardization as universal codes of conduct, idealizations of latent power which will steer our entry into the twenty-first century.

This conclusion bears on the basic debate in international political economy. Note that, as it stands, the emphasis on differential accumulation does not necessarily negate the significance of other material and ideal considerations, nor does it eliminate the role played by non-corporate actors and governments. For instance, those who emphasize the primacy of 'societal groups' could interpret our findings as evidence for the unbalanced impact of oil and armament corporations on the foreign policy of the United States. More 'instrumentalist' observers (such as Blair and Domhoff, for example) may interpret Middle East developments as a clear case of several key groups manipulating the state for their own purpose. The Marxist school of 'monopoly capital' (as elaborated by Magdoff, for instance) could identify the changes occurring in the Middle East since the 1970s as part of a neo-imperialist response to a realignment in the international structure of power. Specifically, it may be argued that the primacy of arms exports in US foreign policy emerged not from the need to 'contain communism' or a desire to offset excess capacity, but rather from the pressing imperative to counteract the competitive decline of US business *vis-à-vis* European and Japanese

firms. Finally, adherents to the statist view (like Krasner) may take both the Middle East arms race and the roller coaster of oil prices as part of a state-centred competition between the old European powers and the post-war superpowers. This competition, they may argue, together with growing Middle East nationalism gave rise to repeated military conflicts and oil crises in which the large multinational corporations were sometimes used to support statist interests.

But will these generalization stand closer scrutiny? If differential capital accumulation is indeed a necessary component of international political economy, could it be reconciled with all of its principal schools? Which (if any) of its main frameworks – statist, liberal and Marxist – is *inconsistent* with the emphasis on differential accumulation as the primary power index and main driving force? In the context of the Middle East and the interaction between oil and arms, how well does each of these approaches stand together with or in contrast to our empirical findings? These questions remain to be answered.

#### NOTES

Research for this paper was supported by grants from the Social Sciences and Humanities Research Council of Canada and the Davis Institute for International Relations in Jerusalem.

- 1 On the differences between the 'structuralist', 'functionalist' and 'instrumentalists' interpretations within the Marxist literature on the state, see Isaac (1987: ch. 5) and Caporaso and Levine (1992: ch. 8).
- 2 This attempt to get to the essence of things may be comparable to the Weberian search for 'ideal types', or Marx's method of 'abstraction' (as described for example in Sweezy, 1942, p. 16).
- 3 The discussion in this and the following two subsections draws on the more elaborate analysis in Nitzan (1992).
- 4 The notion that 'primitive' societies are marked by cooperation, as opposed to 'civilized' societies which are driven by power is elaborated in Mumford (1967, 1970).
- 5 We are of course aware of the literature dealing with the goals of the firm, where notions such as 'stability', 'sales maximization', 'social image' and alike are often cited as alternative corporate targets (see for example Scherer and Ross, 1990: 38–52). It is our view, however, that such goals are at best subsidiary and could not for long conflict with the overriding profit imperative.
- 6 Higher profits are often associated with higher consumption, but the latter is more a corollary than a primary goal. Furthermore, profit-induced consumption is usually conspicuous in nature – that is, aimed at establishing a *differential* status. This is highly important, because once we move into the realm of conspicuous consumption, the notion of 'real profit' assumes an entirely different meaning: higher prices, which from a utilitarian perspective imply a lower real income, for the conspicuous consumer often mean the exact opposite, since they bestow a higher differential status!

- 7 This line of analysis has been elaborated by later writers, such as Baran and Sweezy (1966), Magdoff (1969), O'Connor (1973), Gold (1977) and Amin (1976), who also linked it with the economic and cultural expansion of capitalism into Third World countries, primarily in quest for raw materials and cheaper labour. For a summary of these issues, see Szymanski (1981).
- 8 Note that these considerations are based only on DoD prime contracts and ignore the impact of subcontracting, foreign military sales and contracts awarded by NASA and the Department of Energy. However, since the largest prime contractors for the DoD are also the biggest subcontractors and foreign sellers, as well as the leaders in space and nuclear technology, we can safely assume that the inclusion of these additional categories will have no significant bearing on our classification.
- 9 Excluded from the sample is Hughes Aircraft which, as a privately-held firm until 1986, did not publish financial reports. Also omitted are General Motors which entered the Arma-Core only in 1986 after acquiring Hughes Aircraft; LTV which filed for bankruptcy protection in 1986; and Tenneco whose annual contract awards fluctuated widely.
- 10 The notion of the 'big economy' refers to the cluster of several hundred very large oligopolistic firms which dominate the modern business sector. In the United States, the dichotomy between the 'big' and 'small' economies began to appear with the early rise of 'big business' during the last decade of the nineteenth century, and since then was further shaped and reshaped through successive waves of mergers and acquisitions. Although this process was already identified by Veblen (1904), it was only with the turbulence of the Great Depression that economists started to analyse it more systematically. For recent contributions to this literature, see for example Averitt (1968), Edwards (1979) and Bowring (1986).
- 11 The main problem is that most of the large defence contractors operate as conglomerates with civilian as well as military lines of business. Their profit data, however, are rarely broken in a similar manner, and even when they are, the classification is usually based on accounting conventions rather than economic considerations.
- 12 For example, according to *Business Week*, in 1984, the military sales of Boeing accounted for 40 per cent of its sales revenues but 80 per cent of its net income ('The military buildup at Boeing', 11 March 1985, p. 46). Similarly, in the third quarter of 1986, General Motors suffered an operating loss of \$339 million on its automobile production, but thanks to the military sales of Hughes Aircraft and EDS, and to the financial gains from GM Acceptance, the overall profit was positive ('GM's big operating loss', *Business Week*, 3 November 1986, p. 36). Governmental audits often suggest that military production is more profitable than civilian production. Thus, when the House Appropriation Committee considered halting the F-18 programme, there emerged the fact that sales of military aircraft generated half the revenues of McDonnell-Douglas, but all of the company's profits. Or, an audit of some 8,000 contracts between the Pentagon and General Electric (in effect during the 1976-83 period) revealed an average rate of profit of 25 per cent, substantially higher than the corresponding average for the company's commercial business ('Cracking down on contractors', *Time*, 8 April 1985, p. 14). Unfortunately, such studies are too infrequent and not sufficiently comprehensive. One may be tempted to solve the problem indirectly, by regressing overall profits against sales originated from distinct lines of business. The estimated coefficients could then be interpreted as the

- respective profit markups, and used to impute the relative contribution to profit of each line of business. However, this method breaks down once we allow profit margins to vary over time.
- 13 Strictly speaking, the big economy includes more than the Fortune 500 group of companies. The latter contains only those firms which derive at least half of their sales from either manufacturing or mining, but there are many other very large corporations which rely more heavily on banking, finance, utilities, services, transportation or retailing, or that are simply too diversified to be classified as belonging to any single category. To these, one must further add the large privately-held companies for which financial data are commonly unavailable. However, given that the Fortune 500 group still comprises most of the largest US-based firms, using it as a tentative proxy for the big economy is not unreasonable.
  - 14 To the extent that this assumption is inaccurate, the index would overestimate the dependency of the Fortune 500 sales on defence contract awards.
  - 15 While the sixteen firm sample comprises a fixed group of companies, the composition of the Fortune 500 list varies each year. However, the changes here occur primarily at the bottom of the list, so the impact of the changing population does not have a marked effect on the ratio. Clearly, mergers and acquisitions affect both the denominator and numerator of our figures in much the same way.
  - 16 Computed from Commission of the European Communities, Directorate-General for Economic and Financial Affairs (1992) *European Economy*, No. 51, May, Table 5, p. 185.
  - 17 *Citibase* (1990), p. X-1-1, Table 1.1, series GNP and p. X-4-1, Table 4.1, series GEX and GIM.
  - 18 Calculated from data published by the International Monetary Fund, in its *International Financial Statistics Yearbook*, 1979, p. 62; and 1993, p. 109.
  - 19 The figures are for book value at year-end. Data are from the US Bureau of the Census, *Statistical Abstract of the United States*, 1979 (100th edn), Table 1496, p. 850; and 1991 (111th edn), Table 1388, p. 793.
  - 20 US Department of Commerce, Bureau of Economic Analysis (1986) *The National Income and Product Accounts of the United States, 1929-82, Statistical Tables*, p. 310, Table 6.21B, and US Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States*, 1992, p. 542, Table 872. Note that, since these figures include the profits of *all* firms, they tend to underestimate the dependency on foreign profit by the *large* corporations which account for most US direct foreign investments.
  - 21 Over the past three decades, there was a persistent decline in the ranking of the large US-based corporations relative to their foreign-based counterparts: in 1960, there were 114 US firms among the world's 174 largest companies in 15 major industries but, by 1990, the United States was home to only 56 of the world's 176 largest corporations (calculated from data in Franko, 1991). Confronted with growing global competition, many US-based companies which during the first half of the twentieth century were undisputed world leaders in civilian markets, increasingly retreated to government-sheltered areas such as defence, nuclear energy and medical-related technologies. In the electronics industry, for instance, General Electric embarked on a major restructuring programme which, over the 1981-7 period, involved acquiring some 338 business and product lines and divesting 232 others ('General Electric is stalking big game again', *Business Week*, 16 March 1987, pp. 112-13). The process, whose main goal was to divert from markets dominated by the Japanese, involved among other things, the 1985 acquisition of RCA (partic-

- ularly for the latter's defence business) and the 1986 'swap' of GE's consumer-electronic lines with Thomson's medical-equipment unit ('A reunion of technological Titans', *Time*, 23 December 1985, pp. 50ff, and 'Jumping Jack strikes again', *Time*, 3 August 1987, pp. 33). In 1992, General Electric sold its defence electronics unit to Martin Marietta, but in turn became a major shareholder of the latter company ('This deal could send Martin Marietta into orbit', *Business Week*, 7 December 1992, p. 35). In the aircraft industry, Lockheed left commercial aviation altogether after its entanglement with the L-1011 airliner almost brought it to bankruptcy. Similarly, McDonnell-Douglas, which was initially created in 1967 when McDonnell absorbed Douglas as a means of diversifying into non-defence activity, never made any money from civilian aircraft and, in 1991, entered into a tentative agreement to sell 40 per cent of its civilian airline unit to Taiwan Aerospace ('A dogfight could nick the F-18', *Business Week*, 14 February 1983, pp. 64ff; 'Tower to McDonnell: turbulence ahead', *Business Week*, 23 May 1988, pp. 117-18; 'American eagle talks turkey with the Taiwanese', *Business Week*, 2 December 1991, p. 55). During the 1980s, even Boeing began to suffer significantly from the competitive advances of the European Airbus consortium. Similar consequences appeared in the automobile industry which, faced with severe Japanese competition, chose to diversify into defence-related activity. The most significant changes occurred in General Motors which, during the mid-1980s, acquired EDS and Hughes Aircraft to become one of the country's ten largest defence contractors.
- 22 Data for domestic deliveries of defence products are available only since 1968, so earlier data had to be estimated on the basis of contract awards. This was done in several stages. First, we estimated a CLM regression for the 1968-89 period, with domestic deliveries as a function of a constant, one current and three lagged variables for contract awards. Using the estimated coefficients from this equation, we then computed the predicted values for domestic deliveries for the period between 1963 and 1968. Finally, we spliced the predicted series to the actual deliveries series at 1968.
- 23 The latest arms export data from the US Arms Control and Disarmament Agency are for 1989, but advance information already indicates that the early 1990s brought a significant increase in foreign military orders, particularly in the aftermath of the 1990/1 Gulf War. According to the US Defense Security Assistance Agency (DSAA), export agreements signed under the Foreign Military Sales (FMS) Program during the 1990-92 period totalled \$51.3 billion - up 83 per cent from their total of \$28.1 billion in the previous three-year period (*Foreign Military Sales, Foreign Construction Sales and Military Assistance Facts as of September 30, 1992*, pp. 2-3). At the same time, DoD data indicate that domestic prime contracts awarded over the 1990-2 period fell to \$388.7 billion - down from \$408 billion in 1987-9 (*100 Companies Receiving the Largest Dollar Volume of Prime Contract Awards*, the 1987 and 1992 editions). The most recent data from the US Congressional Research Service suggest a new record for arms exports: while domestic military contracts continued their steep descent, foreign deals signed during the year ending October 1993 more than doubled from their 1992 level, reaching an all time high of \$32 billion ('Boom', *The Economist*, 13 August 1994, p. 24). Of course, not all export sales agreements and domestic contract awards come to fruition, but to the extent that these trends are roughly indicative of future deliveries, we may very well see the  $RDMP_t$  ratio rising in the 1990s up to 30 or even 40 per cent.
- 24 The crucial role of arms exports is well depicted by extreme examples. Grumman, for instance, was saved from near-bankruptcy in 1974 by a major

sale of F-14 Tomcat fighter planes to Iran (Sampson, 1977: 249–56). Similarly, during the early 1990s, the proposed sale of 72 F-15 Eagle fighters to Saudi Arabia appeared as a near 'make-or-break' for a financially-troubled McDonnell Douglas ('Crying "jobs" to sell weapons abroad', *Business Week*, 16 March 1992, p. 37). According to the US Defense Security Assistance Agency (DSSA), the future survival of important domestic programmes, such as the M1A1 tank, the Blackhawk helicopter, and the HAWK surface-to-air-missile, is tied to foreign sales (US Congress, Office of Technology Assessment, 1991: 3). The adverse consequences of unsuccessful export ventures were illustrated in the mid-1980s by Northrop's debacle with the F-20 'fighter for export' – a plane which the company had spent \$1.4 billion to develop but never manage to sell (Ferrari *et al.*, 1987: 27). Unfortunately, the lack of adequate statistics on the arms exports of individual corporations makes it hard to go much beyond such illustrations. The firm-specific data published by the DoD cover only sales agreements (which may be subsequently altered or cancelled), but not eventual deliveries. Furthermore, these data are restricted to contracts which are channelled through the FMS Programme, while leaving out those that are handled as direct commercial sales.

- 25 The principal difference between the Foreign Military Sales (FMS) and Direct Commercial Sales (DCS) programmes is that in the former, the US government acts as a paid negotiator between the US defence company and the buying government (with a 3 per cent commission), while in the latter, it only provides the legal approval for the proposed deal. Initially, DCS were limited to contracts worth less than \$25 million and, later, to those not exceeding \$100 million. In 1981, the Reagan Administration eliminated the ceiling, allowing buyers to choose their preferred arrangement. DCS are commonly more profitable than FMS and usually less tied to formal US foreign policy objectives. Unfortunately, DCS are not documented as well as FMS. For more on the two programmes, see Ferrari *et al.* (1987: 51) and US Congress, Office of Technology Assessment (1991: 11–12; 56–8).
- 26 Computed from the US Congress, *Economic Report of the President*, 1993, Table B-76, p. 438.
- 27 Earlier pre-crisis studies are also not without fault. For example, in his work on *Multinational Oil*, Jacoby (1974: 245–7) shows that the large oil companies suffered a significant decline in their foreign profitability, which he attributes to increased competition since the mid-1950s. Jacoby's methodology and implications are questionable, however. First, much of the decline of international profits in the 1950s was rooted not in a more intense competition, but in higher royalties to host countries. Second, since the royalties were debited as foreign taxes against the oil companies' domestic operations, focusing only on foreign operations serves to conceal the compensating increase in domestic after-tax earnings. Indeed, as Blair (1976: 193–203, 294–320) demonstrates, the decrease in the companies' global rate of return was far smaller than the one recorded in their operations abroad. Furthermore, global profitability started to rise again in the early 1960s and, by the early 1970s, was already far higher than what it was in the early 1950s.
- 28 The 'Petroleum 40–42' include the Petro-Core firms as well as lesser international oil companies. Over time, the number and identity of firms in this group varied slightly, but since this involves the inclusion or exclusion of the relatively smaller companies at the bottom of the list, the impact on the composite rate of return is by and large negligible.

- 29 Although there are no statistics on the global profits of the entire oil industry, it is not unreasonable to assume that the 'Petroleum 40-42' group accounts for the lion's share of such earnings.
- 30 Figures for the corporate sector as a whole represent the net profit component of national income and are hence somewhat different from the Petro-Core data which are based on the standard accounting conventions of corporate financial reports. However, since we are concerned here not so much with actual levels but rather with long-term variations, these differences should not affect our conclusions.
- 31 The notion of the 'degree of monopoly' was first proposed by Kalecki (1943) to explain price behaviour in finished-goods industries, but this can clearly be extended also to oligopolistic situations in the primary-good sector.
- 32 Individual firms could of course augment their reserves via corporate mergers and acquisition which leave the industry's overall capacity unaltered. Despite their prevalence, however, such practices have had only a limited impact on the long-term expansion of world proven reserves, which have risen more than tenfold in the past half century.
- 33 The extent of the companies' control during that time is well illustrated by their ability to contain the oil glut of the Great Depression. During the 1930s, the Iraqi Petroleum Company (a joint venture between British Petroleum, Royal/Dutch Shell, CFP, Exxon, Mobil and Gulbenkian) exercised a 'Veblenian' policy of 'watchful waiting' throughout much of its Red-Line Agreement regions. For example, in Iraq, the company produced in an area accounting for only one half of 1 per cent of its entire concession; in Qatar it delayed production until 1950, some eighteen years after the first exploration; and in Syria, the IPC drilled shallow holes, so as to insure that its policy of 'sitting on' a concession still complied with its formal exploration commitments (Blair, 1976: 80-6).
- 34 Indeed, many policy initiatives were cancelled solely due to opposition from the large companies. For example, during the Second World War, the large firms objected to the attempt by the Petroleum Reserve Corporation to take control over their joint Saudi holdings, much as they opposed the Anglo-American Oil Agreement and the Saudi-Arabian Pipeline. The big companies also refused to allow independent companies more than a symbolic share in the 1953 Iranian Consortium, objected to the 1970 Shultz Report which suggested substituting tariffs for the dated system of import quotas, and ignored the Administration's request that they accommodate Libyan demands for a higher price. As a result, none of these policies and suggestions came to fruition (see Blair, 1976: 220-30; Krasner, 1978: 190-205; Turner, 1983: 40-7, 152-4).
- 35 *BP Statistical Review of World Energy*, (1990: 5).
- 36 This negative association prevails even if we exclude Communist countries: based on data from the *BP Statistical Review of World Energy*, production in the non-Communist world exceeded consumption by 2.1 per cent in 1973, and by 4.0 per cent in 1974.
- 37 See 'Why big oil loves cheaper oil', *Business Week*, 11 February 1991, pp. 26-7.
- 38 The corresponding shares for 1990 were 27 per cent out of total production and 66 per cent of proven reserves. Data computed from Jacoby (1974, Table 5.1, pp. 68-9; Table 5.2, pp. 74-5) and from *BP Statistical Review of World Energy* (1991: 2, 4).
- 39 See for instance 'How the price of oil hit \$40 a barrel', *Fortune*, 5 November 1990, p. 12.
- 40 OPEC governments are of course interested not so much in the overall value of exports, as in the income they derive from those exports (after cost and

the share of the oil companies). Unfortunately, there are no comprehensive statistics on OPEC's 'intake', though this should be tightly correlated with the total value of its oil exports. Such close correlation is evident from partial data on the Middle East, where the Pearson's correlation coefficient ( $r$ ) between government oil receipts and the overall value of oil exports for the 1961–89 period is 0.998 (computations based on data from the American Petroleum Institute as reported in Bina, 1985, Table 22, p. 98, and various issues of the *BP Statistical Review of World Energy* and the *UN Statistical Yearbook*).

- 41 We should note that in focusing on the association between oil revenues and arms exports we are not endorsing standard 'statist' or 'recycling' explanations. Our emphasis on accumulation would have been better served by examining the impact of Middle East oil revenues on the *profits* from foreign military sales but, unfortunately (though perhaps not surprisingly), data on such profits are conspicuously lacking.
- 42 Although this could not be ascertained without proper data, it is not unreasonable to expect a similarly tight correlation between oil income and armament *profits*.
- 43 For example, based on US Arms Control and Disarmament Agency data, the implicit price deflator for arms imports into the Middle East rose at an average annual rate of 6.8 per cent during the 1970s and 4.4 per cent during the 1980s (computed from *World Military Expenditures and Arms Transfers*, 1970–79 edition, Table II, p. 87; 1990 edition, Table II, p. 91).
- 44 As we noted in Section 2, there is no easy way to identify the domestic and foreign components of the Arma-Core's military-related profits. However, since foreign military sales constitute a net addition to domestic military procurement, and given that the export markup is commonly higher than the one earned on domestic operations, military contractors have little reason to forgo export opportunities abroad.

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THE WEAPONDOLLAR-PETRODOLLAR COALITION

APPENDIX A

Aggregate financial statistics for the sixteen Arma-Core Companies<sup>a, b</sup>  
(\$ million)

| <i>Year</i> | <i>Sales</i> | <i>DoD prime contract awards</i> | <i>Owners' equity</i> | <i>Net profit</i> |
|-------------|--------------|----------------------------------|-----------------------|-------------------|
| 1966        | 27,341       | 9,876                            | 7,211                 | 1,058             |
| 1967        | 33,558       | 12,776                           | 8,584                 | 1,091             |
| 1968        | 37,482       | 13,168                           | 9,507                 | 1,194             |
| 1969        | 37,545       | 11,419                           | 10,067                | 1,016             |
| 1970        | 38,913       | 10,425                           | 10,534                | 926               |
| 1971        | 38,579       | 10,427                           | 11,492                | 1,107             |
| 1972        | 39,818       | 12,845                           | 12,348                | 1,282             |
| 1973        | 45,999       | 11,948                           | 13,448                | 1,625             |
| 1974        | 53,457       | 13,309                           | 14,040                | 1,666             |
| 1975        | 56,237       | 15,030                           | 15,164                | 1,711             |
| 1976        | 61,997       | 15,640                           | 17,678                | 2,358             |
| 1977        | 67,516       | 18,372                           | 19,746                | 2,919             |
| 1978        | 75,797       | 23,399                           | 21,990                | 3,270             |
| 1979        | 90,309       | 22,245                           | 25,294                | 4,509             |
| 1980        | 105,959      | 25,849                           | 29,044                | 5,099             |
| 1981        | 115,385      | 30,969                           | 32,238                | 5,183             |
| 1982        | 116,553      | 42,029                           | 34,670                | 5,220             |
| 1983        | 125,323      | 48,843                           | 38,448                | 5,610             |
| 1984        | 135,633      | 53,262                           | 42,378                | 7,629             |
| 1985        | 147,223      | 61,265                           | 45,057                | 7,416             |
| 1986        | 164,808      | 58,041                           | 47,642                | 5,796             |
| 1987        | 173,060      | 55,894                           | 51,593                | 8,294             |
| 1988        | 192,924      | 52,244                           | 56,408                | 9,019             |
| 1989        | 205,536      | 50,094                           | 61,309                | 9,941             |
| 1990        | 221,451      | 49,107                           | 63,717                | 9,380             |
| 1991        | 225,101      | 47,505                           | 65,226                | 5,423             |

*Source:* Data on company sales, owners' equity and net profits are from Standard & Poor's Compustat Services (1986) and 'The Fortune 500' (various years). Department of Defense (DoD) prime contract awards are from US Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, *100 Companies Receiving the Largest Dollar Volume of Prime Contract Awards* (various years).

*Notes*

<sup>a</sup> The sixteen Arma-Core firms include, in alphabetical order, Boeing, General Dynamics, General Electric, Grumman, Honeywell, Litton Industries, Lockheed, McDonnell Douglas, Martin Marietta, Northrop, Raytheon, Rockwell International, Texas Instrument, Textron, United Technologies (United Aircraft until 1974) and Westinghouse.

<sup>b</sup> Sales, owners' equity and net profit are for calendar years while DoD prime contract awards are for fiscal years.

## ARTICLES

## APPENDIX B

Aggregate financial statistics for the six Petro-Core companies<sup>a</sup> (\$ million)

| <i>Year</i> | <i>Sales</i> | <i>Owners' equity</i> | <i>Net profit</i> |
|-------------|--------------|-----------------------|-------------------|
| 1930        | na           | na                    | 218               |
| 1931        | na           | na                    | 42                |
| 1932        | na           | na                    | 48                |
| 1933        | na           | na                    | 94                |
| 1934        | na           | na                    | 152               |
| 1935        | na           | na                    | 197               |
| 1936        | na           | na                    | 311               |
| 1937        | na           | na                    | 414               |
| 1938        | na           | na                    | 275               |
| 1939        | na           | na                    | 213               |
| 1940        | na           | na                    | 252               |
| 1941        | na           | na                    | 307               |
| 1942        | na           | na                    | 239               |
| 1943        | na           | na                    | 288               |
| 1944        | na           | na                    | 363               |
| 1945        | na           | na                    | 356               |
| 1946        | na           | na                    | 457               |
| 1947        | na           | na                    | 702               |
| 1948        | na           | na                    | 982               |
| 1949        | na           | na                    | 768               |
| 1950        | na           | na                    | 987               |
| 1951        | na           | na                    | 1,180             |
| 1952        | na           | na                    | 1,499             |
| 1953        | na           | na                    | 1,590             |
| 1954        | na           | na                    | 1,661             |
| 1955        | na           | na                    | 2,007             |
| 1956        | na           | na                    | 2,311             |
| 1957        | 24,399       | na                    | 2,419             |
| 1958        | 21,464       | na                    | 1,882             |
| 1959        | 22,304       | na                    | 2,071             |
| 1960        | 23,149       | na                    | 2,200             |
| 1961        | 24,369       | na                    | 2,386             |
| 1962        | 26,926       | na                    | 2,649             |
| 1963        | 28,928       | na                    | 2,992             |
| 1964        | 30,296       | na                    | 3,082             |
| 1965        | 32,190       | na                    | 3,238             |
| 1966        | 34,816       | 31,416                | 3,441             |
| 1967        | 38,428       | 32,136                | 3,650             |
| 1968        | 41,883       | 34,273                | 4,172             |
| 1969        | 44,407       | 36,207                | 4,163             |
| 1970        | 49,212       | 38,537                | 4,225             |
| 1971        | 57,543       | 41,901                | 4,735             |

THE WEAPONDOLLAR-PETRODOLLAR COALITION

Appendix B continued

| <i>Year</i> | <i>Sales</i> | <i>Owners' equity</i> | <i>Net profit</i> |
|-------------|--------------|-----------------------|-------------------|
| 1972        | 63,768       | 42,924                | 4,423             |
| 1973        | 82,678       | 48,715                | 7,978             |
| 1974        | 152,829      | 56,347                | 10,579            |
| 1975        | 154,638      | 56,114                | 7,320             |
| 1976        | 174,655      | 58,177                | 7,987             |
| 1977        | 197,805      | 65,252                | 8,401             |
| 1978        | 220,082      | 70,774                | 8,839             |
| 1979        | 292,043      | 87,190                | 19,918            |
| 1980        | 380,810      | 105,007               | 21,709            |
| 1981        | 405,932      | 109,631               | 18,380            |
| 1982        | 369,750      | 112,035               | 12,871            |
| 1983        | 338,251      | 114,621               | 14,736            |
| 1984        | 349,824      | 109,852               | 15,132            |
| 1985        | 371,641      | 120,548               | 14,927            |
| 1986        | 275,417      | 128,338               | 12,665            |
| 1987        | 311,551      | 138,986               | 9,704             |
| 1988        | 311,050      | 136,662               | 17,813            |
| 1989        | 334,503      | 135,398               | 17,965            |
| 1990        | 411,896      | 149,280               | 20,001            |
| 1991        | 396,650      | 157,601               | 15,159            |

*Source:* For 1930-56, data are from O'Connor (1962: 19-20). For 1957-91, data are from Standard & Poor's Compustat Services (1986); 'The Foreign 500' (various years); 'The Fortune 500' (various years); 'The Fortune International 500' (various years); 'The International 200' (various years); 'Guide to the Global 500' (various years).

*Note:* (a) The six Petro-Core companies include, in alphabetical order, British Petroleum (previously Anglo-Persian and Anglo-Iranian) Chevron (previously Social), Exxon (previously Standard Oil of New Jersey), Mobil (previously Socony and Socony-Mobil), Royal Dutch/Shell and Texaco.