

# To Arms Control or Not: Lessons of Focused Case Comparisons

BARRY H. STEINER

The preoccupation of states with relative military power, a fundamental feature of international life, is no better illustrated than in interstate arms competition. According to Hans J. Morgenthau, 'competition for armaments reflects, and is an instrument of competition for power. . .[and of] contradictory claims in the contest for power'.<sup>1</sup> In three potential ways, arms rivalry tests the commitment of adversary states to their respective relative power aspirations. Initiators of arms rivalry act to improve relative military power in relation to a rival. To attain their desired force ratio, initiators must respond to intervening force deployments by the rival. Finally, the rival may not only act to resist the initiator's weapons deployments, but aim at a new force ratio favourable to itself.<sup>2</sup>

Relative advantage, a primary goal in arms competition, is best attained by self-help, autonomy, and flexibility.<sup>3</sup> Yet arms rivals committed to gaining relative advantage over each other are able at times to negotiate limits upon force increases and/or improvements.<sup>4</sup> The search for relative advantage and negotiated limits then coexist. For example, arms negotiation was a continuing preoccupation in the Soviet-American cold war nuclear arms competition, in which two superpowers worked for a more stable and predictable balance of power between themselves. It has also been important in a very different arms race, the post-cold war rivalry between the United States and North Korea, in which a superpower sought to prevent a regional power contender from cultivating a nuclear weapons arsenal. At other times the search for relative advantage has not been accompanied by efforts at arms negotiation. Negotiated cooperation between arms rivals was absent in European 19th-century naval competition, and appears to be also missing in the contemporary nuclear weapons competition between Pakistan and India.

The difference between arms rivalry with and without agreement, the primary preoccupation of this essay, is linked to a major dispute in the literature over the value of cooperation over armaments. One school of thought contends that cooperation between arms rivals often emanates from a fundamental misunderstanding of the *political* effects of the urge to compete in armaments; if arms rivalry is dangerous, cooperation is not likely to be forthcoming, while if rivalry is not dangerous, cooperation is irrelevant.<sup>5</sup> Accentuating the requirements of long-term arms competition, it emphasizes the need for autonomous and flexible decision-making and critiques much of the experience of negotiated arms agreement.<sup>6</sup> The opposing school of thought emphasizes the need to enhance cooperation between arms rivals, and argues that such cooperation does not inevitably suggest failure to take competitive objectives into account or a softening of those objectives.<sup>7</sup> The approach

draws attention to the fact that cooperation between arms rivals may be shaped by competitive motives and can enhance the search for relative arms advantage. It also recognizes that such cooperation is likely to be rejected and stymied when it does not contribute to the rivals' perceived relative advantage.

The present study seeks to move beyond this debate by comparing arms competition with and without arms cooperation, an exercise not yet undertaken, so far as is known. A second interest is to inquire whether case comparison reveals testable generalizations linking the causes of cooperation in arms races with the causes of its absence. Some might argue that, given the rivals' interest in flexibility and autonomy in arms development, the two patterns would not be comparable but would each depend upon context and circumstances. Yet a link between the two is logical – that is to say, empirically grounded tendencies and not merely incidental differences in circumstances should affect the behaviour of arms rivals in this respect.<sup>8</sup>

Three independent variables, each a candidate for validation, are introduced here as alternative explanations for the difference in our cases in cooperative tendencies, the dependent variable in the analysis. Each of the independent variables and the dependent variable can be linked to arms competition in the post-cold war period. They are applied in this essay to two documented historical cases with very contrasting arms control experiences – the 19th-century Anglo-French naval competition and the 20th-century Soviet-American nuclear arms competition – the purpose being to find whether the dynamics of one or more of the independent variables are inter-related in the two cases. The inquiry concludes that one of these variables, the rivals' integration of their security and political relationship, does reflect such an inter-relationship and thus explains some of the variance in diplomatic management of the two cases. A concluding section summarizes the paper and applies these conclusions to the American-North Korean and the Pakistani-Indian nuclear weapons competitions of the present day.

### **The Research Problem**

This essay tests the importance of the search for advantage as against the incentives for cooperation in arms racing. Our primary concern, as indicated, is to explain why arms competitors were concerned with mutual advantage in one of our cases but not in the other. To develop such an explanation, we ask: Why should the arms rivals' search for national advantage be accompanied by the search for mutual advantage?

Our analytical framework contains two key working assumptions. First, consistent with our definition of arms races, we assume that rivals in arms competition are guided primarily by the search for relative advantage. By the nature of their competition, the rivals have no *inherent* need for mutual arms restraint because their primary objective is to attain more favourable force goals, overcoming their opponents' intervening force accumulation and improvements to obtain them. A second assumption, which allows for but does not mandate negotiated arms restraint, is that the rivals' search for relative advantage is difficult and burdensome, taxing not only their material resources but their definition of force equivalence in relation to each other. In theory, no matter how strongly arms racers seek unilateral advantage over

their adversary, they *always* have an incentive to seek such advantage at less cost and with the adversary's cooperation. While no racer would wish to unilaterally slacken its arms efforts if the result was added force vulnerability to its opponent's arms increases, agreement for mutual restraint may provide both with more security at less expense.<sup>9</sup>

Our two cases – the Anglo-French and superpower competitions – have been selected because they embody differences in the dependent variable, the propensity of arms competitors to cooperate for mutual advantage. It is not maintained that the two are representative of the universe of arms races, but only that the contrast between them affords an opportunity to understand patterns that can and should – because of the attractiveness of arms restraint – be applied to any arms race case.<sup>10</sup> That is, even a very small case sample can probe the question of why some arms races can proceed for decades without arms limitation while others seem obsessively directed to that task.

Moreover, the limited case sample adopted here has special value in preliminary study in countering the analyst's tendency to be too wedded to one set of expectations, a point stressed by the most trenchant critics of arms control practice and theory.<sup>11</sup> The present analysis uses the Anglo-French case to question the frequency of negotiated arms restraint, as well as the notion that diplomatic arms management is central to arms rivalry. Whatever difficulties and burdens the arms rivals experience, those developments may not lead them toward mutual restraint; instead, force deployments by the opponent – resistance to a rival's relative force objectives – may reinforce the rival's determination to improve its relative power. Because of the strength of that determination, incentives for the rivals to cooperate on force restraint may be overwhelmed by the effort to gain national advantage.

By contrast, this analysis employs the Soviet-American example to question how arms rivals can compete over a long period of time without negotiated restraints – that is, to question how cooperation between rivals can be anything but central. Difficulties and burdens of competition *may*, as in the superpower case, contribute to negotiated arms restraint. Incentives to cope jointly with those difficulties and burdens will remain strong, for example, if one or both of the rivals concludes that the arms competition leads to economic or political challenges not envisioned at the outset of the competition.

The three independent variables in this essay are:

1. *Force equivalence*, a standard by which each racer gauges the military strength of the opponent against its own and aspires to some level of strategic superiority;
2. *Intelligence capabilities*, defined in terms of one racer's ability to discriminate in and anticipate force additions and/or improvements by its adversary; and
3. *Security and political interests*, a rival's integration of its arms programs with its broader international diplomatic position.

It is not contended that the three variables are the only ones that might have been chosen.<sup>12</sup> Nor is it maintained that the explanations yielded by any or all of them would be fully adequate for understanding the propensity of arms competitors to

negotiate on armaments. The argument is, rather, that each is a foundation for arms competition as well as arms control, and that, taken together, the three can assist in explaining the difference in the diplomatic experience of our two cases.

Each of the variables is logically associated with arms racing.<sup>13</sup> The first and second of these variables have been selected because they are connected to the endeavour of arms competitors to improve their relative power. The first, force equivalence, does not signify equality between the competitors but rather a force objective providing some force advantage that would be lost in the absence of participation in arms competition. The force objective, defined in relative terms, is taken as a standard to evaluate the adequacy of the rival's force exertions and the overall character of the force relationship between the arms competitors. Aspirations of the arms competitors would be defined in detail in terms of this standard. Perhaps the best known of such force standards was the long-standing British two-power naval standard, according to which Great Britain aspired and worked toward a level of strength equivalent to that of the next two ranking naval powers.<sup>14</sup>

The second variable, intelligence capabilities, is as indispensable for arms agreement as it is for the ability to compete in the absence of agreement. That is because reliable information of the rival's current and anticipated force strength is needed to determine the risks of limiting one's own forces at any level. Not only is knowledge of the adversary's force strength a possible substitute for additional forces, but force transparency provides cooperative potential even in the absence of negotiated agreement.<sup>15</sup>

The third of the variables was chosen to reflect on the arms competitors' overall relationship, which is likely to contain political rivalry but also some measure of cooperation.<sup>16</sup> For example, arms racing has been linked to the likelihood of war between the racers; the interest in this variable is whether the competition does in practice increase tensions and, conversely, whether cooperation over armaments can reduce them. From a diplomatic point of view, an interest in normalizing or improving relations can be a strong stimulant of cooperation on armaments, but the rivals may not attach high priority to such diplomatic development.

Our dependent variable, as indicated, is the propensity of arms rivals to cooperate on armaments. Inasmuch as this is a preliminary study, the variable has been simplified here to draw attention to developments most contributing to the contrast between our cases. A fuller study would utilize a larger case sample and define at least two logical intermediate positions for arms rivals between the opposed tendencies focused upon here: (1) acting upon informal, rather than negotiated arms restraint;<sup>17</sup> and (2) discussing mutual restraint in armaments without success.<sup>18</sup>

### Three Independent Variables

This section elaborates upon the independent variables to establish that each of them logically contributes to cooperation for arms restraint, as well as to the search for relative advantage. In each instance, our requirement in distinguishing and analyzing our independent variables is to understand when the difficulties of competing lead to negotiated restraint and when those difficulties do not have this effect.

*Force Equivalence*

To realize its force aspirations, each rival must define a force standard relating its perceived actual and potential military strength with those of its opponent. Since war-making is the primary test of force adequacy, procurement standards should depend on war scenarios and objectives. For example, the great German naval buildup aimed at Great Britain prior to the First World War was predicated on the assumption that Britain, unlike Germany, would be unable to concentrate her large fleet in the North Sea.<sup>19</sup> More often, force standards are political in character, advertising commitment to rivals or neutralizing political opposition at home. The British two-power standard, already referred to, was primarily political in character. When not incompatible, force equivalences or standards may provide the basis for agreement between the rivals on overall force structures or more narrowly on anticipated force instalments, enabling them to fulfil force goals more rapidly and at less expense. For example, each rival may assume that it will have a defensive position to contain an offensive-minded competitor. Negotiated arms control agreement is then justified when it bolsters the defender's ability to protect itself and allows the defender to convey its resolve and preparedness to defend against attack.<sup>20</sup> While leaving cities vulnerable to attack, Soviet-American arms agreements were designed to discourage attack by bolstering capabilities of long-range forces to retaliate once an attack had taken place.

Even when force equivalences are not compatible, arms rivals may accommodate in diplomatic negotiation key actual or potential strengths when neither side believes it can coerce its opponent to accept its ideal standard or even to practice force restraint. Its force aspirations remain, but an arms rival, acting upon determination of force equivalences, agrees to circumscribe an adversary's force options while placing limits upon its own. Such agreements are predicated upon determination of relative advantage. According to John Mearsheimer, 'states motivated by relative power concerns are likely to forgo large gains in their own power, if such gains give rival states even greater power, for smaller national gains that nevertheless provide them with a power advantage over their rivals'.<sup>21</sup> For example, American proposals in the 1950s and 1960s to disarm obsolescent superpower bomber forces were likely to have been shaped by American numerical superiority in long-range bombers then prevailing over their Soviet counterparts; the proposals would have enhanced relative American advantage over the Soviets even as they entailed destroying more American than Russian forces.<sup>22</sup> The point here is that the search for relative advantage on force equivalences can be compatible with negotiated agreement.

Although negotiated agreement would seem to rule out imposing one side's force goals upon the other, agreement can be facilitated by threatening force additions to gain adversary force restraint. Specifically, a rival may commit itself to respond to some adversary force deployment with force programs of its own, or agree to abstain from provocative force programs only if the adversary practices equivalent restraint.<sup>23</sup> While application of these strategies can be non-diplomatic, the interest in them here is in their ability to contribute to negotiated arms restraint if the

competitors – determined to gain relative advantage – also incorporate common interests into an agreement.

Finally, the need for reciprocal strategies will be still larger when force goals are especially demanding and difficult to attain, or when, because of continual and rapid technological innovation in weaponry, developing force equivalences between rival military strengths is unusually difficult. While quantitative additions to forces based upon force equivalences may discourage arms negotiations by fostering the view that force aspirations are attainable, technological rivalry in armaments can legitimate such negotiations by bolstering the view that competition is not only stalemated but – assuming that incompatible force aspirations continue – destined to end in deadlock. Soviet-American arms limitation talks affirmed, according to Gerard C. Smith, ‘that the most likely outcome of the strategic technology race was stalemate . . . Technology had provided no answer to escaping from an escalating competition. That would have to come from international politics whose prime technique is talk’.<sup>24</sup>

On the other hand, security competition will prevent both agreement and force restraint if the rivals have divergent notions of force equivalence and each overinvests in offensive or defensive forces to avoid endangering its security. This is particularly problematic when the security dilemma, whereby one side’s defensive-minded forces are interpreted by the rival as offensive in character, is severe.<sup>25</sup> Scares in England associated with offensive-minded French forces recurred in the Anglo-French naval rivalry, and fears about offensive-minded Iranian nuclear forces heavily preoccupy Israel at present. Second, technological rivalry may prevent negotiations by emphasizing for the rivals not the stalemate in the competition but the uncertain value of deployed forces, which makes it difficult or impossible to develop force equivalences. British battleship building was retarded in the 1880s by concerns over French submarine building. A third reason for the absence of agreement is that the rivals are determined to complete their force programs and lack strategies of reciprocity. As in the German naval buildup before the First World War, highly motivated force development cannot be modified in exchange for equivalent restraint by rivals.

### *Intelligence Capabilities*

The racers’ national estimative intelligence of each other’s military strengths and intent permits them to adopt and act upon force equivalences. Asymmetry in national intelligence can be fundamental for achieving force aspirations or for compensating for military inferiority. It is thus critical for gaining relative advantage in arms racing. But improved appreciation of the rivals’ capabilities may dampen arms rivalry, to the rivals’ mutual benefit. For example, arms controllers viewed shifting nuclear weapons technologies in the superpower case as a danger because those shifts introduced uncertainties into force planning and into gauging adversary intentions. The rivals may realize they are poorly aware of their opponents’ strength and intentions, and become hypervigilant. According to Thomas Schelling and Morton Halperin, ‘the most important circumstance in which both sides might gain from an improvement in intelligence about each other’s military strength is that in which information on both

sides (or perhaps just on one side) is so poor, and is recognized to be so poor, that there are strong motivations to err on the upward side'.<sup>26</sup>

Alternatively, poverty of information may prevail even when the rivals are not aware of it. When rivals think they know the opponent's intentions and capabilities well but do not, they may become complacent, underestimating their opponent and the threat they pose to it.<sup>27</sup> A defensive-minded state that acts to contain an expansion-minded one risks being misperceived when it expands its forces.<sup>28</sup> Its goal is to demonstrate that its force expansion does not affect its defensive intent, and therefore that the adversary need not react to them. Though the purpose for the rival's weapons expansion is defensive, its competitor may exaggerate the defender's hostility as the result of that force buildup because it is too confident of its information.<sup>29</sup>

While self-help improvements in intelligence gathering and collection can help remedy exaggerated force estimates by distinguishing offence from defence,<sup>30</sup> arms rivals can also diplomatically share force program information as a means of calming tensions.<sup>31</sup> They can then use this information to respond more accurately and effectively to the opponent's force programs. Both sides gain by better understanding the propensity of their adversaries to react to their force buildups. Competition is then dampened when rivals obtain information about their adversaries' force programs, especially when those force programs advertise intentions. 'When offense and defense are distinguishable', Charles Glaser has written, 'arms control provides a bilateral option for achieving the same results as a policy of unilateral defense emphasis. . . . Relative to defense emphasis, arms control becomes more attractive as the advantage of offense grows, since defeating the adversary's offense with defense becomes more expensive and at some point exceeds the defender's means'.<sup>32</sup>

To be unable to distinguish defensive from offensive intent in arms competition, on the other hand, invites heightened danger of war. 'Unless the requirements for offence and defence differ in kind or amount', according to Jervis, 'a status quo power will desire a military posture that resembles that of an aggressor'.<sup>33</sup> Racing intensified by the rivals' inability – a consequence of the security dilemma – to distinguish offensive from defensive weaponry and by 'the unintended and undesired consequences of actions meant to be defensive', Jervis writes,<sup>34</sup> adds to the urgency of distinguishing defensive force programs from offensive-minded ones. Exchanging information can permit the rivals to race more safely, lessening fears of each other's offensive intent.

Still, intelligence capabilities and requirements may not stimulate arms restraint. First, the rivals may view their intelligence capabilities as a source of relative advantage that they are unwilling to relinquish or even concede. Those capabilities may add to the vulnerability of a rival's force, especially when it is small or offensive-minded. Upon becoming known to the adversary, those capabilities can intensify arms rivalry because one side's fears of attack may grow even when the other is reassured. Opaque forces, on the other hand, can be a security resource against such capabilities. Second, intelligence capabilities promote arms acceleration but not restraint when the rivals are unable to distinguish offensive from defensive weaponry. And third, rivals hyper-vigilant about each other's forces will have difficulty sharing information even when dissatisfied about what they know about their rivals' programs. Attaching great

significance to small differences in forces, they will be unwilling to let their adversary know how much information they possess.

### *Security and Political Interests*

Arms rivals, reacting to each other's weapons deployments, are also interdependent in other ways. Our concern here is whether the larger relationship between the rivals is linked to their arms rivalry, and, if so, what the character of that linkage is.<sup>35</sup> The argument is that negotiated agreement over armaments may be dependent upon the larger relationship, but is likely to be important even when such a relationship does not exist.

Major powers cooperate in continuing, permanent ways on issues extending far beyond military force procurement. They may actively concert over a long-term period over a particular question. They may agree to mitigate or prevent military confrontations in particular areas. They may share norms establishing agreed-upon spheres of influence. They may agree to consult in relation to actions of other states.<sup>36</sup> States treat each other as interdependent in each of these instances. As Alexander George noted in his discussion of the cold war Soviet-American relationship, '[e]ach side realizes that it has to take into account, however imperfectly and at times incorrectly, the impact its own policies and actions are likely to have on the other side'.<sup>37</sup> The search for relative advantage is not incompatible with such interdependence and may be facilitated by it. In their larger political relationship, one rival may seek to exercise greater influence than its opponent, or even sideline its opponent completely on a consequential issue.<sup>38</sup> Self-help persists in arms rivalry as well, as negotiated arms control supplements but does not replace national defence measures.<sup>39</sup>

The point is, however, that negotiated arms control reflects an important component of highly valued cooperative security between the rivals, whose commitment to political cooperation stimulates diplomatic arms restraint because they believe their cooperative relationship requires it. That is, arms racers accept that competition for relative force advantage in the absence of negotiated agreement would likely undermine cooperation on other issues, while agreed-upon arms control would enhance larger common interests.<sup>40</sup>

On the other hand, understandings between arms rivals on non-military questions may be weak or nonexistent, undermining the incentive for negotiated arms control otherwise provided by such understandings. Traditional realists, who play down interstate norms of cooperation and accentuate the importance of self-help, view arms races as a manifestation of intractable political rivalry – as Michael Krepon put it his analysis of superpower relations, 'political dynamics that lead both sides to compete for at least marginal gains out of fear of consequential losses'.<sup>41</sup> However, although the importance of attaining desired force goals is higher in this scenario, the rivals are likely to maintain strong efforts to control their arms competition, for two reasons. First, the security dilemma will be more problematic when political understandings are sparse and/or insignificant, the rivals being then be less able – for political reasons – to distinguish defensive capabilities and intent from offensive ones. Second, in the absence of broader common interests and

agreement between them, the rivals are more likely to be more sensitive to the actual and potential security-diminishing consequences of their rivalry.<sup>42</sup>

That is, even when the political stimulant to arms negotiations described above in our first scenario is lacking, arms racers are still likely to cope cooperatively with arms races, because common security in armaments then has a different and perhaps even more important role than in a well-developed political framework. The rivals' need for common interests in armaments is then arguably larger than when a larger cooperative political framework exists. In the latter case the larger understandings can be used as a source of agreement, making negotiation over armaments less urgent.

However, wider political interests may impede arms restraint. First, geopolitical interests may stimulate defensive-minded and offensive-minded states alike to compete in weaponry, perhaps by enabling rivals to insulate their overall diplomatic relationship from arms race irritation without arms agreement. Second, the volatility of the arms competition is partly due to the competitors' problematic security relationship; for example, arms rivalry tends to accelerate upon the onset of crisis between the competitors.<sup>43</sup> Third, a security relationship, whether or not it is problematic, may lead arms rivals to insist on autonomy in regulating the size and quality of their military forces. Finally, an improving political relationship between the rivals may not translate into arms restraint, either because the urgency of the competition is then perceived to be relatively low, or because the rivals are emboldened by non-military restraints to compete vigorously in weaponry. The rivals may accept the cost of arms competition as the price of an improved security relationship, and persisting competition may be more tolerable because of the overall improvement.

*Table 1* summarizes the arguments justifying and opposing arms restraint for each of our three variables.

### **The Dependent Variable: Diplomatic Arms Management**

Our dependent variable is the propensity of arms race participants to diplomatically negotiate over weapons that they have accumulated or plan to accumulate. Adam Watson has defined diplomacy as 'negotiation between political entities which acknowledge each other's independence'.<sup>44</sup> Negotiation means formalized discussions over weaponry by diplomatic representatives. A prerequisite for such discussions, according to one analysis, is 'an appreciation of the fact that the parties have a shared risk, a *mutual* desire to avoid the consequences of an enforced threat, and a common interest in solving problems'.<sup>45</sup>

One important incentive for such discussions is the perceived link between arms competition and the likelihood of war. While competitive behaviour can objectively reduce the likelihood of war or increase it, this essay uses the preoccupations of the competing states as the primary indicator about the link between competitive arming and the danger of war. If arms competitors are anxious about the tension-increasing aspect of their rivalry, they have the ability to address those dangers and act to reduce each other's incentives to attack even as they pursue competitive goals. Doing so logically requires mutual arms restraints and awareness of common interests,

TABLE I  
THREE INDEPENDENT VARIABLES

Variable	Supporting Diplomatic Arms Restraint	Opposing Arms Restraint
(1) Force Equivalence	<ol style="list-style-type: none"> <li>(1) Regardless of whether force equivalences are compatible, relative power can be improved through force agreement more easily than without.</li> <li>(2) When force equivalences are incompatible, agreement can be supported by reciprocity strategy.</li> <li>(3) When competition appears stalemated or force aspirations are demanding, force agreement and reciprocity are especially useful.</li> </ol>	<ol style="list-style-type: none"> <li>(1) Divergent notions of force equivalence are hard to satisfy, especially when security dilemma is severe.</li> <li>(2) Rapid technological change impedes development of force equivalence.</li> <li>(3) Rivals are determined to complete force programs.</li> </ol>
(2) Intelligence Capabilities	<ol style="list-style-type: none"> <li>(1) Lessening uncertainty about competitors' intent and capabilities promotes agreement by dampening arms rivalry, reducing complacency, and reducing war danger.</li> <li>(2) Sharing information promotes agreement by clarifying competitors' propensities to react to each other's force programs, especially when advantages to offence grows relative to defence.</li> </ol>	<ol style="list-style-type: none"> <li>(1) Intelligence capabilities are viewed as a source of strategic advantage.</li> <li>(2) Information about force capabilities enhances vulnerabilities for an inferior force.</li> <li>(3) National intelligence will not promote restraint if it does not adequately distinguish offensive from defensive capabilities.</li> <li>(4) Hypervigilant competitors have difficulty sharing information, attaching large significance to small force asymmetries.</li> </ol>
(3) Security and Political Interests	<ol style="list-style-type: none"> <li>(1) When mistrust in racing imperils the competitors' larger relationship, their mutual desire to protect their larger political relationship promotes force agreement.</li> <li>(2) When mistrust is associated with absence of larger agreement, arms agreement is promoted by a more problematic security dilemma and by greater sensitivity to political and economic costs of arms racing.</li> </ol>	<ol style="list-style-type: none"> <li>(1) Geopolitical competition stimulates arms rivalry.</li> <li>(2) Security relationship is changeable, so arms accumulation is volatile, e.g., diplomatic crisis accelerates arms competition.</li> <li>(3) Competitors would rather be free than bound in deciding upon force accumulation.</li> <li>(4) Competitors' improved security relationship makes the arms race more tolerable.</li> </ol>

which are most important for international stability. Whether they acknowledge this link or not, on the other hand, competitors may rely entirely upon self-help, autonomy, and flexibility, as instruments of strategic advantage or of stability.

Our cold war case highlights the rivals' concern for common interest as well as self-help, while our 19th-century case underscores the rivals' priority for self-help and their disregard for common interest. This essay capitalizes upon this difference by employing each case as a deviant example – that is, each case is used to generate questions whose answers must be taken into account when searching for regularities. Because one of our cases reflects arms negotiation, and the other does not, the challenge in conceptualizing our dependent variable is to outline why we would expect arms negotiation to take place, even when it did not.

From the superpower arms rivalry we ask: Why was the 19th-century naval case *not* like the superpower rivalry in reflecting persistent arms negotiation? Reasoning from the superpower arms negotiations, we may hypothesize that arms racers, who have adversarial interests in conflicting force goals, also have convergent and mutual interests over slowing or modifying arms increases that cause them greater insecurity.<sup>46</sup> We would expect the racers to become aware of the convergent interests over time and to act upon them.

We would expect diplomatic preoccupation with armaments to take one of two particular forms. One would be to mutually stem declines in security associated with interactive force increases. The rivals would be most concerned about force increases they perceived as facilitating military advantage in an attack, or as contributing to war if an arms competitor were in doubt about the defensive intentions of its opponent. In short, the competitors would be expected to clarify through discussion and agreement the sources of the so-called 'security dilemma' described above. A second diplomatic preoccupation with armaments would be preventive – to protect accommodation on other vital issues of the competitors from being disturbed by competitive arms increases. That is to say, when arms competition is defined as an important diplomatic issue, an objective of the competitors – assuming they are not able to end the arms rivalry – would be to insulate it as a factor in their overall relationship.<sup>47</sup>

From the naval example we ask: Why was superpower nuclear rivalry not like the naval competition? Specifically, why did the preoccupation with relative advantage not prevent the nuclear arms rivals from gaining agreement on common arms concerns – either to address the rivalry itself or to prevent it from affecting accommodation on other questions? According to this mode of understanding, convergent interests do not weigh significantly in the rivals' calculations. Arms races should be characterized as a bargaining relationship, in which participants contest their balance of forces and seek to maximize their advantages in the balance at the expense of the adversary.<sup>48</sup> First, while each *might* desire force restraint, the rivals may be more determined to push force programs for relative advantage than to limit those of the opponent. Second, arms agreement may not be required to stabilize the balance between the racers. Unilateral defensive action may be as useful to provide military stability between the racers as arms agreement. Neither is free from the risk that the adversary will misperceive the defensive intent of increased deployments and view them instead as offensive in character.<sup>49</sup>

Third, the rivals may not act to protect or insulate other accommodation from their arms rivalry, nor see those other issues as linked to arms management. Fourth, substitutes for diplomatic arms restraint, in the form of fiscal limitations or changes in weapons technology, may have been present in the naval competition that may have made diplomatic initiative unnecessary. Finally, the rivals may not perceive arms competition as increasing the likelihood of war between them, but instead are willing to accept their arms conflict, and its security-threatening aspects, as an element of international anarchy and intractableness.<sup>50</sup> In short, bargaining over armaments may be either unfeasible or unnecessary. Taken together, these arguments support the null hypothesis.

### Case Methodology

We have established that our three causal variables can be logically linked to the choice between self-help and arms restraint in arms competition. Our common questions, each designed to assist the detailed pursuit of the research interests defined here, and emerging from both of our cases, are designed to permit displays of linkages of this kind as well as of the variances between our cases. The common questions are as follows:

1. What stimulated the start of the competition? What made it mutual?
2. How did the competition reflect efforts by the rivals to improve their relative military position? What standards of force equivalence did the rivals have to guide their weapons accumulation?
3. Were there important uncertainties in weapons technology that complicated or interfered with prior force goals and/or standards of force equivalence?
4. Were the rivals significantly impeded in estimating their adversaries' actual and potential military strength, or were those strengths clearly apparent to them?
5. Did the larger security relationship between the competitors affect their rivalry, and if so, how?
6. What were the sources of arms restraint? Were these sources related to the sources of arms acceleration?

The superpower case has been thoroughly studied and analyzed, while the Anglo-French case is relatively unknown.<sup>51</sup> We now discuss those cases with reference to these questions.

### The Anglo-French Naval Competition, 1840–1866

France, having traditionally accepted a navy two-thirds the strength of Great Britain, sought naval parity with the British following an Anglo-French diplomatic crisis over Syria in 1840.<sup>52</sup> The French, acting to prevent British naval domination, subsequently increased the number of their seamen to almost equal the British strength, enlarged their naval dockyards, and indicated they would utilize steam propulsion in naval vessels rather than sail, upon which British naval superiority had been based. In 1846 the French Parliament approved a steam fleet construction program. The British Admiralty, seeking to perpetuate British naval domination, responded by rapidly converting line-of-battle and frigate sail ships to steam from 1846 to 1848, outdistancing the French program.

By 1856 the French stopped laying down new ships of the line, instead converting sailing ships to steam and wooden ships to armour-plated ironclads; the British government stated early in 1859 that France had completed the same number of steam-powered line of battleships as had England. France, the first to introduce (in 1859) ironclad construction, began a large ironclad naval program in 1860, to which the British responded with a large ironclad program of their own in 1861. England continued in this period to build wooden ships fitted with armour plate, proposing as late as 1860 building eight wooden battleships and 12 wooden frigates.

Anglo-French rivalry was stimulated by the widespread British belief that the advent of steam warships enhanced the potential for a French invasion of the unprotected British coast. Three 'invasion panics' took place in England: in 1847–1848, 1851–1853, and 1859–1861, bolstered by French steam warship building and the weakness of the British militia. On the other hand, British and French defence expenditures actually declined from 1847 to 1851, and in 1848 the British Parliament rejected an income tax increase to bolster the militia.

### *Force Equivalence*

The French as challengers sought newer steam and ironclad technologies to overpower more plentiful but obsolescent British ships, while the British, seeking to preserve naval supremacy, accepted larger arms burdens to be numerically superior in all types of naval vessels, including obsolescent wooden ships. On the other hand, shifts in naval technology complicated efforts to determine force equivalence between older and newer vessels (particularly for the British, with a larger assortment of warships), and it also contributed to renewed competition at each new design plateau, in which each side aimed at numerical superiority. The French enjoyed parity or superiority to England in steam vessels in 1859; and in ironclad numbers from 1859 until 1866, when the competition ended and the British reestablished the 3:2 ratio over France that it enjoyed before 1840. As the competitors aimed at numerical superiority in steam and iron warships, they lacked flexible or negotiable force programs.

### *Intelligence Capabilities*

Exchanging information about naval building was little needed, as the French did not hide their naval strength. 'It would be just as possible', according to Richard Cobden, a keen observer of this rivalry, 'to build a great hotel in secrecy in Paris, as to conceal the process of constructing a ship of war at Toulon or Cherbourg'.<sup>53</sup> Fears remained in England, however, about French offensive intentions and French naval budgets. The advent of Louis Napoleon as French ruler in 1851 coincided with reports of 'immense' French naval budget increases, and fears stoked by former British foreign minister Lord Palmerston (intent on bolstering the militia) that 50–60,000 men could be transported without notice from Cherbourg to England in a single night.

### *Security Interests*

Though started following Anglo-French crisis, the naval competition does not appear to have been sustained by interstate political rivalry and appears to have been largely disconnected from it. Arms racing did not retard improved diplomatic relations between the two countries in the course of the competition. The two countries were allied in the Crimean War from 1852–1854, and in 1859 Cobden, a critic of the competition, negotiated on behalf of England a trade liberalization agreement with France.

The receptivity of British domestic opinion to panics about French invasion does not seem to have contributed to volatility in arms competition, as the size of the British fleet was not set by domestic opinion, and the British public did not

support extravagant naval expenditures. The most important source of arms restraint in the competition was the disutility of increased defence spending.

### **Soviet–American Nuclear Competition, 1945–1991**

Superpower postwar nuclear arms programs were sustained by deteriorating Soviet–American relations after the Second World War.<sup>54</sup> The United States sought to keep military dominance by amassing a large strategic nuclear arsenal to compensate for Soviet superiority in standing armies. By the early 1960s it limited missile and bomber numbers in favour of improving munitions and warhead technology. Though much weakened by the devastating impact of the Second World War upon itself, the Soviet Union aimed to blunt and undermine American dominance, at first seeking parity in nuclear technology with the United States while accepting large inferiority in numbers of deliverable nuclear weaponry, but by the late 1960s exceeding the United States in numbers of long-range intercontinental and submarine-launched ballistic missiles (ICBMs and SLBMs).

Two-sided arms rivalry set in after the Soviet test of an atomic bomb in 1949. Thereafter, rapid technological changes in weaponry pushed by both sides in bomb technology and in the means of delivering atomic explosives fuelled arms rivalry, because of potential war destruction, the speed with which nuclear attack could be inflicted, and the initial vulnerability of strategic forces to attack. The United States preceded the Soviets in developing atomic bombs, fusion bombs, more versatile atomic weaponry for battlefield purposes, long-range jet aircraft, submarine-launched ballistic missiles, and highly accurate multiple independently-targeted warheads for ballistic missiles (MIRV). It elected to produce a ‘triad’ of strategic forces (long-range aircraft, submarines, and ground-based long-range ballistic missiles) to ensure weapons survivability and a strike-back force in the event of a nuclear attack, a requirement for deterrence of war. The Soviets mostly imitated American technological advances to deter war, but pioneered in large ballistic missile rockets and in production of long-range ballistic missiles. Insecurities associated with projected Soviet production of long-range bombers, missiles, and orbital satellites in the 1950s stimulated accelerated American bomber and missile deployments.

Each side possessed strike-back forces with the advent of submarine- and underground- based ballistic missiles in the 1960s, but continued to cultivate a counterforce capability (in the form of multiplication of warheads on long-range ballistic missiles and the improvement of missile accuracy), anticipating a nuclear war that arose not from surprise attack but from escalation of superpower non-nuclear war in Europe.

Nuclear armaments were part of the superpower diplomatic agenda from the late 1940s, to attempt to reduce the danger of unlimited arms competition. At first gamesmanship diplomacy focused on the unrealistic goal of general and complete disarmament, with the US focusing on inspection of force cuts and the Soviets seeking cuts before inspection. Subsequent negotiations (in the mid 1950s) occurred on limiting long-range bombers, and (beginning in the late 1950s) on a proposed ban on nuclear weapons tests. A partial ban on nuclear weapons tests that did not require

inspection (excluding underground testing) was agreed to by the superpowers in 1963. The first superpower strategic arms limitation treaty (SALT I) in 1972 limited anti-ballistic missiles to very low levels while setting provisional, five-year unequal ceilings on Soviet and American ICBMs and SLBMs. Permanent and equal force ceilings were agreed to in 1979, along with limitations on long-range missiles equipped with multiple independently targeted warheads (SALT II). In 1987, the Soviet Union, giving priority to economic and political reform at home, signed with the US a landmark treaty dismantling medium- and intermediate-range ballistic missiles in Europe, the Soviets eliminating about three times as many launchers and twice as many missiles as did the United States.

In 1991, having agreed to end their cold war and arms race, the superpowers concluded the strategic arms reduction treaty (START I), cutting nuclear warhead levels by 4,000 for the United States and 5,000 for the Soviet Union, and began gradual agreed-upon reductions to Russian and American long-range nuclear forces. A follow-on START II treaty in 1993 cut START I levels by more than half, and in 2002 START II was superseded by a Strategic Offensive Reductions treaty, providing for warhead levels of 1,700–2,200 on each side by 2012. The most recent New START treaty, concluded in March 2010, aims to reduce numbers of deployed long-range ballistic missile warheads to 1,550 by the year 2017.

### *Force Equivalence*

The political concept of parity, or rough equality in military force, legitimated the SALT negotiations, but rapid shifts in technology, differences in strategy, and asymmetries in the rivals' strategic forces, impeded detailed comparisons of the forces and made reciprocated equivalence impossible.

First, rapid changes in weapons technology, which produced a condition in which, as Herman Kahn described it in 1960, 'we are having a complete technological revolution in the art of war approximately every five years',<sup>55</sup> inherently increased the uncertainty of force comparisons as weapons modifications were introduced. Second, the rivals' force asymmetries were shaped in part by the fact that they adapted to technological changes in different ways. As indicated, the United States at first sought to be superior in all major weapons systems, irrespective of the rate of their obsolescence, while the Soviets avoided large weapon buildups. Later, the United States limited ballistic missile launchers in favour of warhead improvements, while the Soviet Union, behind in warhead technology, greatly increased its numbers of launchers.

Third, the two distinct superpower strategies that shaped their force goals, deterrence of direct attack and counterforce, each depended heavily on the degree of vulnerability of forces but presented different approaches to force comparison. Deterrence, in the form of strike-back forces, required mainly forces that were invulnerable rather than a large array of forces; numerical and even technological comparisons in this regard were of peripheral importance. Counterforce strategy was more conducive to detailed force comparisons, because it depended on the relative potency of warhead lethality and weapons protection, but because military

superiority depended on the counterforce mission, the rivals were not likely to agree upon equivalence for that capability.

American force levels arguably owed more to domestic political considerations than to force equivalences. Sizing the American SLBM and ICBM forces in the early 1960s depended upon accommodating Congressional pressures at levels larger than needed for strike-back deterrence. Agreement to keep anti-ballistic missile (ABM) levels low in SALT I was dictated by the unpopularity of the ABM system in the United States.<sup>56</sup> SALT I, limiting American offensive missile forces not slated for quantitative expansion, was politically used by American military leaders to compensate for the then prevailing anti-defence political climate there. Those officials employed the treaty to highlight invidious quantitative comparisons of superpower forces and robust Soviet efforts to compete with the United States in making their case for force modernization.<sup>57</sup>

### *Intelligence Capabilities*

Until the mid 1950s, American uncertainty over Soviet force plans was caused by the fact that the Soviet Union was effectively a closed society in which American intelligence assets were weak. Soviet rejection of large quantitative buildups in nuclear weaponry contributed to its strategic vulnerability to the United States, enhancing the value of hiding the size and location of Soviet forces and thus of the value to the Soviets of adding to American uncertainty about those forces. The uncertainty in turn contributed to American quantitative buildups, despite the rapidity of technological advances in weaponry in this period; American panic episodes, already alluded to, over Soviet bomber and later Soviet ICBM construction, took place amidst this considerable uncertainty. By contrast, Soviet intelligence of the United States was much better, permitting Soviet officials to know the large prevailing American numerical force superiority relative to the Soviet forces in that period.

American intelligence weakness was corrected by the late 1950s through the American U-2 reconnaissance plane, controlled by the Central Intelligence Agency, which detected the small Soviet bomber and missile programs then underway. Highly guarded U-2 intelligence enabled the American government to conclude that earlier estimates of Soviet bomber and long-range missile construction were considerably exaggerated, and the Eisenhower administration practiced restraint in initial ICBM missile production, resisting domestic pressures to accelerate it.<sup>58</sup> Though overhead reconnaissance was initially an instrument of American superiority, by the late 1960s it provided reassurance of the defensive intentions of each side, and beginning with the SALT I agreement it became the primary means of verification of negotiated superpower arms control. 'It is no exaggeration to say', former Central Intelligence Director Robert Gates has written, 'that there would have been no SALT, no arms control at all, without CIA's active involvement'.<sup>59</sup>

Improved intelligence ensured that the superpower rivals could compete more safely than in the past, being more aware of each others' intentions and capabilities, but it was by no means adequate to end arms competition. 'Transparency', according to one analysis, 'is certainly no recipe for dampening [arms] competition, as shown by the history of the Cold War'.<sup>60</sup>

*Security Interests*

Downturns in superpower relations tended to intensify rivalry. For example, the North Korean attack against South Korea in 1950, which was interpreted as implemented in concert with Soviet intentions and heightened polarization of superpower relations, made possible a vast increase in American spending on fusion and fission weapons, and on long-range bombers, all aimed at the Soviet Union. Prior to that time, American spending levels reflected little competition with the Soviet Union.<sup>61</sup> In the 1980s, as renewed cold war between the rivals set in following the Soviet invasion of Afghanistan, the American government – citing a larger threat from a major Soviet strategic weapons program – initiated a major force building program of its own. It also declared that it would no longer observe the force ceilings provided for in SALT II (unratified because of the invasion), and the agreement lapsed.

Improved relations, on the other hand, did not slow the arms rivalry but made the rivals more willing to agree on arms controls. The Partial Test Ban treaty was negotiated in the wake of the Cuban missile crisis of 1962, in which the dangers of superpower confrontation were clearly apparent. It symbolized the public determination of Soviet and American leaders to work together to reduce the dangers of nuclear war. The SALT I accord of 1972 was the centrepiece of Soviet-American détente, which represented a wide-ranging effort to cooperate on a variety of military and diplomatic questions, even as the superpowers remained adversaries. Finally, the 1987 accord, and the START I and II agreements of 1991 and 1993, were all made possible by radical improvement in superpower relations accompanying the end of the cold war. Soviet President Mikhail Gorbachev, looking to stimulate Soviet economic development, rejected further arms competition with the United States, and his initiatives were reciprocated by Presidents Ronald Reagan and George H.W. Bush.

**Analysis: The Role of Arms Control in Rivalry**

We now evaluate the importance of our variables – force equivalence, intelligence capabilities, and security interests – for the use or non-use of diplomacy as arms management in our two cases. The significance of our independent variables depends in this analysis on how well they satisfy two requirements. First, our independent variables must significantly vary between our cases. They cannot have a causal impact on our independent variable – the propensity of rivals to diplomatically manage their arms competition – unless they themselves vary.<sup>62</sup> Second, our independent variables must be causally linked to our dependent variable outcomes in our two cases. We must be able to demonstrate, in other words, that our independent variables impact the propensity of our arms competitor states to cope diplomatically with rivalry in armaments – that is, they explain why our cases tend to the extremes in the propensity of arms rivals to manage their rivalry.

*Force Equivalence*

The force equivalence variable shows little contrast between our two cases, and therefore cannot explain the variance in the propensity to diplomatically manage arms rivalry.

First, no reciprocated equivalence, a logical basis for negotiated arms control, existed in either of our cases. This was partly because our arms races were technological in character. They raised uncertainties not only about attaining quantitative force goals but about the value of numerical goals as an indicator of relative strength. To be sure, the rivals did respond to each other's force deployment. For example, when one rival set the direction for a technological shift, the rival followed suit, and major quantitative buildups occurred despite the risk of obsolescence. But one rival could initially avoid heavy buildups in older weaponry to cultivate new weapons systems (France, the Soviet Union), while another (England, the United States) could build heavily even in older weapon types to preserve the lead it was intent upon keeping. In the superpower case, the Soviet Union, which initially neglected large nuclear force buildups, stressed them later, while the United States, which built up heavily, limited its nuclear delivery systems to a pre-existing number.

Second, if technological improvement in weaponry hampered determination of weapons equivalence in both cases, it cannot explain the variance in our dependent variable. To be sure, the manner in which submarine-based and land-based long-range nuclear forces could be protected against attack provided technology-based superpower stability in the form of strike-back forces that was lacking in the naval case. It invited the perception that technological arms competition was futile, inasmuch as any sustained effort to erode a superpower's ability to retaliate to attack was likely to fail.

On the other hand, those emphasizing the superpower tendency, because of the prevalence of strike-back forces, to be cautious in utilizing nuclear weapons for war-making purposes maintained that the condition of mutual strike-back forces sufficed to make the rivals more objectively secure and rendered diplomatic efforts to negotiate arms agreement redundant or counterproductive.<sup>63</sup> They challenged the link between weapons stability and negotiation, and maintained that convergence was associated with objective conditions alone. Another challenge, applicable as well to the naval race, maintained that the strategic cultures of the superpowers were not convergent, and that Soviet-American arms negotiations disguised that fact.<sup>64</sup> The superpowers persisted in seeking increasingly accurate weapons suitable for first-strike scenarios in which force superiority would be critical. Force superiority seems also to have been an objective of the British and French in their naval race. Technological developments in weaponry in each case made superiority more difficult to obtain, but also made obtaining arms agreement between the rivals more difficult.

Third, unable to explain the variance in our dependent variable, technological competition in weaponry in our cases may actually deflate the significance of the variance in diplomatic arms management in those cases. This is because the rivals may have in practice competed in similar fashion technologically whether or not they exercised the arms negotiation option. Our cases suggest that while negotiation can in principle assist arms racers in attaining their force goals, the rivals may need to resist or confine negotiation to attain weaponry most significant for force superiority. Bernard Brodie, commenting on the naval case, observed that 'The only manner in which Great Britain could assure herself of that continued superiority on the seas

which she deemed indispensable to her security was to continue building, ceaselessly vigilant lest improvements abroad outdistance her own, and seeking always to build more units on each level of development than any two of her rivals'.<sup>65</sup> The United States was similarly vigilant in relation to Soviet technological improvements. The problem Britain and the US experienced in their two cases was, as Samuel Huntington noted, that new arms races in effect begin with each new weapons system, and 'The more rapid the rate of [weapons] innovation, the more pronounced is the tendency toward equality' between the racers, whether or not they are intent upon force superiority.<sup>66</sup>

### *Intelligence Capabilities*

Intelligence capabilities vary significantly between our cases: the Anglo-French case dramatizes the condition of transparency, while the superpower case at first demonstrates the opposite extreme and later transparency in deployed delivery systems but not in warhead design. However, the logic by which these variances would contribute to self-help or negotiated arms restraint remains unclear, and intelligence capabilities therefore do not appear to explain variance in our dependent variable.

First, transparency does not necessarily contribute to arms negotiation. Rather, as illustrated in both our cases, it may discourage negotiation by accentuating how the rivals can compete safely and without the risk of highly exaggerating adversary programs. In the superpower case, overhead reconnaissance helped (though very imperfectly, given the scope of their arms competition) reassure the superpowers of each other's non-belligerent intentions, allowing the rivalry to proceed irrespective of the rivals' larger security relationship. Since they are known to have desired stability as a protection against unwanted nuclear war, the superpowers were unlikely to have continued their rivalry so intensively if they were persuaded that it was dangerous. Their intelligence capabilities, allowing them to detect threatening behaviour by their adversary, helped protect them against the possibility they underplayed the dangers of the rivalry.

Second, the early period of the superpower race shows how intelligence can be regarded as an instrument of strategic advantage, whether for the inferior or the superior side. If it is an advantage, the inferior side would wish to hide its forces, and the superior side to reveal what its adversary seeks to hide. In that condition, intelligence capabilities can contribute to arms restraint by the superior but not by the inferior side, and diplomacy would not be a means for acquiring better intelligence.

Third, it is useful to distinguish transparency, which underpinned self-help in the naval case, from the agreed use of reconnaissance to underpin arms control in the superpower case. The latter had value because intelligence was valued, but the value attached to intelligence was a function of other goals, including the desire for arms restraint. By contrast, transparency might not have value if agreement was not valued. In the naval case, two French invitations to the British government to monitor activity in the French dockyards, in 1853 and 1861, were rejected.

### *Security Interests*

Security interests account significantly for the differences in negotiated arms restraint in our cases. Naval rivalry was largely disconnected from larger security relations between the rivals, being shaped by positional goals in a military hierarchy. Superpower competition, on the other hand, was at times directly affected by security interests although at other times was disconnected from them. Linkage to larger conflict was an important motivator for negotiated arms restraint in the second instance, whereas the absence of the linkage accounts for the absence of agreed-upon restraint in the first.

First, while the disconnect between racing and larger security interests removes the former from the diplomatic agenda, the reason for the disconnect remains unclear. It may happen because the rivals determine that a competing national interest overrides diplomatic requirements. Alternatively, certain behaviours, such as arms accumulation, may at times be regarded as outside the scope of diplomacy. Consistent with this second hypothesis is the possibility that changing diplomatic fashion or practice may affect the variance in our diplomacy variable.<sup>67</sup>

Second, the deep hostility between American and the Soviet Union in the cold war paradoxically underscored the importance of common superpower interests to prevent nuclear war; negotiated arms restraint was a means of symbolizing the awareness of those common interests. A purely self-help competition, raising the perception of insecurity and danger under cold war conditions, would have been difficult to sustain, unlike the earlier naval competition. On the other hand, if what Robert Gates termed 'hardball global competition'<sup>68</sup> underscored the need for arms restraint, improved relations were required to implement it. The durability of superpower competition is visible in its persistence from cold war to détente, arms negotiations, such as the Partial Test Ban and the SALT agreement, succeeding only as overall diplomatic relations improved.

But if it helps account for arms restraint, superpower détente also supported accelerated arms rivalry. As Gates observes, such American strategic force programs as the Trident submarine and missile, the B-1 bomber, the Minuteman III MIRVed ICBM, and the mobile ICBM, were initially funded at low levels in an anti-defence American climate and then saved in part by superpower détente and SALT.<sup>69</sup> When the larger security relationship between the rivals becomes the focus of analysis, the tension between arms restraint and self-help thus disappears. Détente, indispensable for negotiated arms restraint, was also indispensable for arms competition, because it legitimated sustained competition in a way that protracted hostility between nuclear-equipped superpowers could not.

In the superpower case, shifts in superpower relations roughly coincided with shifts in the superpower force balance. During cold war in the 1950s, when the superpowers were unequal in nuclear forces, diplomacy offered an opportunity to the superior American side: bomber agreement in the 1950s might have prevented the Soviets from responding to American bomber deployments and gaining equality with the Americans. The Soviets were not likely to accept permanent negotiated bomber inferiority, and the opportunity was fleeting. By the late 1960s, with the

widespread perception that the superpower relationship had become less dangerous, the primary superpower interest in arms restraint was no longer codifying force imbalance but instead in ensuring flexibility in arms programs. Relative parity in superpower forces made it impossible for arms restraint to prevent a rival's reaction to its adversary's force program. As a result, each side was able to deploy what it wished, and agree to restraint within that rubric. Easing the political pressure to agree, *détente* served the superpower interest in protecting self-help in armaments while providing politically attractive arms restraint. These results are summarized in *Table 2*.

### Conclusions: Security Relationships and Arms Control Prospects

A limited empirical and conceptual focus can, if properly controlled, assist the work of developing empirically grounded generalizations about arms racing. Comparing only two arms race cases – even if unrepresentative – can usefully suggest hypotheses, refine concepts, and suggest directions for further research. This is because our two-case comparison narrowly focuses on the clear-cut difference between them regarding the use of diplomacy to achieve arms restraint. We conclude by recapitulating our key conclusions and then applying them to two additional cases, the nuclear arms competitions now underway between Pakistan and India, and between the United States and North Korea.

Our main conclusion is that both the prevalence and the absence of arms restraints are linked in our historical cases to the same independent variable: the overall security relationship of the arms rivals. That variable rules out or induces diplomatic arms control in arms competitions, depending on whether the competition is disconnected

TABLE 2  
RESULTS OF THE CASE COMPARISON

Variable	Variance between the Cases?	Independent Variable Causally Linked to Dependent Variable?
Force Equivalence	No – Primarily because technological rivalry in weaponry hampered determination of force equivalence	No – technological developments in weaponry made agreement more difficult to obtain
Intelligence Capabilities	Yes – Transparency prevailed in Anglo-French case; asymmetry (initially) and agreed use of overhead reconnaissance to gather intelligence (later) in superpower case	Unclear – Openness to national intelligence-gathering does not necessarily contribute to negotiated force restraint; openness may discourage negotiations by defusing the dangers of racing
Security and Political Interests	Yes – Naval rivalry was disconnected from Anglo-French security relations; superpower nuclear force rivalry was linked to Soviet-American relations	Yes – Linkage to Soviet-American security was a motivator of superpower arms control; <i>détente</i> supports arms agreement and self-help in force accumulation. Naval rivalry was not linked to broader Anglo-French relations; those relations did not motivate arms limitation

or linked to the rivals' security relationship. When arms competition is disconnected from that larger relationship, as in the Anglo-French case, the rivals lack incentive to apply diplomatic management to the competition and negotiated arms control will consequently not occur. But when the competition is linked to the rivals' security relationship, as in the superpower competition, incentives to the rivals to provide arms restraints are much larger and consequently diplomacy is likely to provide them.

Do the Pakistani–Indian and American–North Korean cases support the importance of the larger security relationship between the rivals as a shaper of arms restraint diplomacy?<sup>70</sup> An affirmative answer to this question highlights differences between our contemporary cases that seem to be explained by variance in the rivals' security relationship. The Pakistani-Indian competition has only very limited arms restraint diplomacy, while the American-North Korean rivalry has featured it. A parallel difference is the absence of a security framework in one instance and its presence in the other; arms limitation can be plausibly linked to the security structure in the latter instance.

In the Pakistani-Indian case, formal restraint is ruled out by the absence of an agreed-upon security framework, which adds to the likelihood and the danger of military confrontations. The rivals depend upon outside states, principally the United States, to defuse those confrontations over Kashmir. Tentative initiatives occasionally are made for diplomatic discussions, but though they affirm the mutual need for peace and for symbolic economic and humanitarian ties, they lack substance. The American-North Korean rivalry does contain a security framework in the six-power talks and the in direct channels growing out of it. These frameworks are delicate, changeable, and occasionally founder. It remains unclear whether they can help persuade North Korea to divest itself of its nuclear weapons program. However, the North Korean nuclear program and the American response appear to be linked to those frameworks.

Our second conclusion pertains to the arms control pathway referred to above: the perception that the arms competition helps drive broader security competition between the rivals contributes to mutual concern to reduce the dangers of security competition, even as the rivals retain strong competitive incentives and work to enhance their capabilities for self-help as well as self-restraint. Contrary to the working assumption guiding this study that self-help and arms restraint are in conflict, this conclusion suggests that relative advantage and mutual interest are interrelated when the overall security relationship and arms racing are linked: intensified search for relative advantage then stimulates diplomatic cooperation, and the cooperation permits intensified competition.

This point has implications for neorealist logic and for recent critiques of arms control behaviour. It suggests that neorealist logic explaining arms competition by the rivals' commitment to relative power is insufficient. And it argues for re-evaluating the idea that arms limitation has been fatally over-wedded to the need for restraint and insufficiently grounded in competitive values.

A puzzle emerges from our second conclusion: the stronger the link between the search for relative advantage and diplomatic cooperation, the more surprising and problematic becomes disconnection in the Anglo-French experience between arms

rivalry and the larger Anglo-French relationship. Why, it should be asked, should *any* competition between arms rivals *not* reflect an interaction between arms racing and the larger security relationship as is documented in the superpower case if, as seems axiomatic, both arms competition and arms restraint are shaped by state preoccupations of relative power?

While additional case analysis is required to answer this question, a clue is suggested by a common feature of the Pakistani-Indian and American-North Korean cases: the absence of effort to *shift* relative power between the rivals. Relative power is at stake in these cases, but the rivals are determined to neutralize their adversary's power rather than displace it. These two rivalries are primarily technological rather than quantitative, the parties responding to each other's technical achievements but not to numerical weapons shifts, and not aiming at improving their relative force ratios. The Pakistani-Indian rivalry seems predicated on each side's determination to deny hegemony to the opponent rather than gaining advantage over it. North Korea resists American hegemony on the Korean peninsula, even as the United States remains unquestionably the stronger power there.

This discussion points up a useful distinction between arms rivalries in which deadlock is sought by at least one competitor from the outset (such as France in the Anglo-French case), and competition in which both sides seek superiority and acknowledge deadlock only after subsequent indecisive force adjustments (the superpower case). The former, when power hierarchy is not at stake, may be the less *objectively* dangerous of the two and more difficult to stop. Then arms adjustments impact less on the rivals' security relationship than when hierarchy is challenged. However, *subjective* security considerations may motivate even a clearly militarily superior rival to link its adversary's arms adjustments with diplomatic demands for arms restraint, as the United States has done in relation to North Korean nuclear weapons capability.

#### ACKNOWLEDGEMENTS

An earlier version of this paper was presented at the 50th Annual Meeting of the International Studies Association, New York City, 17 February 2009. Charles L. Glaser and two anonymous reviewers commented on earlier drafts.

#### NOTES

1. Hans J. Morgenthau, *Politics Among Nations*, 4th edn (New York: Knopf, 1967), 394. On the importance of relative power in world politics, see John J. Mearsheimer, *The Tragedy of Great Power Politics* (New York: Norton, 2001), especially chap. 2. Well-known arms race writings include Samuel P. Huntington, 'Arms Races: Prerequisites and Results', in Carl J. Friedrich and Seymour E. Harris (eds), *Public Policy* (Cambridge, MA: Harvard University Graduate School of Public Administration, 1958), pp. 41–58; Colin S. Gray, 'The Arms Race Phenomenon', *World Politics*, Vol. XXIV, No. 1 (October 1971), pp. 39–79; Gray, 'The Urge to Compete: Rationales for Arms Racing', *World Politics*, Vol. XXVII, No. 2 (January 1974), pp. 208–233; Gray, *The Soviet-American Arms Race* (Westmead, Hampshire: Saxon House, 1978); Herman Kahn, 'The Arms Race and Some of its Hazards', in Donald G. Brennan (ed.), *Arms Control, Disarmament and National Security* (New York: George Braziller, 1961), pp. 89–121; Albert Wohlstetter, 'Is There a Strategic Arms Race?', *Foreign Policy*, no. 15 (Summer 1974), pp. 3–20; Wohlstetter, 'Rivals, but No Race', *Foreign Policy*, no. 16 (Fall 1974),

- pp. 57–81; Matthew Evangelista, *Innovation and the Arms Race* (Ithaca, NY: Cornell University Press, 1998); George W. Downs, 'Arms Races and War', in Philip E. Tetlock *et al.* (eds), *Behavior, Society, and Nuclear War* (New York: Oxford University Press, 1991), pp. 73–109; Steve Weber, *Cooperation and Discord in US-Soviet Arms Control* (Princeton, NY: Princeton University Press, 1991); Charles L. Glaser, 'When Are Arms Races Dangerous? Rational versus Suboptimal Arming', *International Security*, Vol. 28, No. 4 (Spring 2004), pp. 44–84; Andrew Kydd, 'Arms Races and Arms Control: Modeling the Hawk Perspective', *American Journal of Political Science*, Vol. 44, No. 2 (April 2000), pp. 222–238; and Alexander T.J. Lennon (ed.), *Contemporary Nuclear Debates: Missile Defense, Arms Control and Arms Races in the Twenty-First Century*, part 3 (Cambridge: The MIT Press, 2002).
2. Some have distinguished 'arms races', on one hand, from 'arms competition', and 'arms rivalry', on the other, as metaphors to describe different intensities of competition. See, for example, Wohlstetter, 'Rivals, but no Race' (note 1). This essay does not focus on the intensity of competition and uses the terms interchangeably.
  3. A study of arms racing that stresses self-help is Weber, *Cooperation and Discord* (note 1). Other studies that focus on self-help are Morgenthau, *Politics Among Nations* (note 1); Mearsheimer, *The Tragedy of Great Power Politics* (note 1); and Kenneth Waltz, *Theory of International Politics* (Reading, MA: Addison-Wesley, 1979).
  4. On arms control problems more generally, see Robert O'Neill and David N. Schwartz (eds), *Hedley Bull on Arms Control* (New York: St. Martin's Press, 1987); Alexander L. George *et al.* (eds), *US-Soviet Security Cooperation* (New York: Oxford University Press, 1988), part 3; McGeorge Bundy, *Danger and Survival* (New York: Random House, 1988); Colin S. Gray, *House of Cards: Why Arms Control Must Fail* (Ithaca, NY: Cornell University Press, 1992); Jeffrey A. Larsen and James J. Wirtz (eds), *Arms Control and Cooperative Security* (Boulder, CO: Lynne Rienner, 2009); Charles H. Fairbanks, Jr. and Abram N. Shulsky, 'From "Arms Control" to Arms Reductions: The Historical Experience', *The Washington Quarterly*, Vol. 10, No. 3 (Summer 1987); 'Arms Control: Thirty Years On', *Daedalus*, Vol. 120, No. 1 (Winter 1991); and 'Arms, Defense Policy, and Arms Control', *Daedalus*, Vol. 104, No. 3 (Summer 1975).
  5. Gray, *House of Cards* (note 4), pp. 19–20. Gray's 'Urge to Compete', (note 1) fails to discuss arms control.
  6. In *The Soviet-American Arms Race* (note 1), p. 182, Colin Gray understands arms racing as 'really only normal Great Power behavior somewhat accentuated'. He has not compared arms competition cases to test his critical approach, but viewing arms racing as typical major power behavior does not seem to encourage comparisons.
  7. Thomas C. Schelling and Morton A. Halperin, *Strategy and Arms Control* (New York: Twentieth Century Fund, 1961).
  8. The idea that the causes of cooperation in arms races should be related to causes of the absence of cooperation is indebted to Geoffrey Blainey's argument that the causes of war are linked to the causes of peace. See Blainey, *The Causes of War*, 3rd ed. (New York: The Free Press, 1988), chap. 3.
  9. Gray, *House of Cards* (note 4), pp. 21–22; Schelling and Halperin, *Strategy and Arms Control* (note 7).
  10. See, on this approach, see Alexander L. George, 'Case Studies and Theory Development: The Method of Structured, Focused Comparison', in Paul Gordon Lauren, (ed.), *Diplomacy: New Approaches in History, Theory, and Policy* (New York: Free Press, 1979), pp. 43–68. George writes in this essay (p. 60) that the choice of cases 'need not be representative in the statistical sampling sense in order to contribute to theory development' (emphasis in original).
  11. This is a major point made in Gray, *House of Cards* (note 4).
  12. For example, arms racing has been linked to domestic pressures for arms development. See, for example, Graham T. Allison and Frederic A. Morris, 'Armaments and Arms Control: Exploring the Determinants of Military Weapons', *Daedalus* (Summer 1975) (note 4), pp. 99–129.
  13. For a pioneering effort to integrate these variables and others in an analytic framework, see Huntington, 'Arms Races: Prerequisites and Results' (note 1).
  14. On the two-power naval standard, see Arthur Marder, *The Anatomy of British Sea Power: A History of British Naval Policy in the Pre-Dreadnought Era, 1880-1905* (New York: Knopf, 1940).
  15. Thomas Schelling and Morton Halperin argued that 'the arms race might be dampened if each side possessed better information about what the other is doing'. *Strategy and Arms Control* (note 7), p. 34. See also Thomas J. Hirschfeld (ed.), *Intelligence and Arms Control* (Austin, TX: Lyndon B. Johnson School of Public Affairs, 1987); and J. Christian Kessler, *Verifying Nonproliferation Treaties* (Washington DC: National Defense University Press, 1995).

16. One study that examined arms competition and negotiation in light of the competitors' broader security interests is George *et al.*, *US-Soviet Security Cooperation* (note 4).
17. On tacit arms control, see *Strategy and Arms Control* (note 7); and George W. Downs and David M. Roache, *Tacit Bargaining, Arms Races, and Arms Control* (Ann Arbor, MI: University of Michigan Press, 1990).
18. For gamesmanship in arms negotiations, see John J. Spanier and Joseph L. Noguee, *The Politics of Disarmament* (New York: Praeger, 1962).
19. Paul Kennedy, *Strategy and Diplomacy: 1870–1945* (Winchester, MA: George Allen & Unwin, 1983), p. 133.
20. Charles L. Glaser, 'Political Consequences of Military Strategy', *World Politics*, Vol. XLIV, No. 4 (July 1992), pp. 509, 511.
21. Mearsheimer, *The Tragedy of Great Power Politics* (note 1), p. 36.
22. For superpower disarmament discussions in the period of relative American force superiority, see *Foreign Relations of the United States: 1955–1957*, Vol. XX: *Regulation of Armaments: Atomic Energy* (Washington: US Government Printing Office, 1990). For an early abortive American bomber disarmament initiative, see Jeremy J. Stone, *Containing the Arms Race* (Cambridge, MA: MIT Press, 1966), p. 75f.
23. Weber, in *Cooperation and Discord* (note 1), pp. 54–55, spells out three 'strategies of reciprocity'. See also Thomas C. Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 1966), p. 270.
24. Gerard Smith, *Doubletalk* (Lanham, MD: University Press of America, 1985), 17. The distinction between quantitative and qualitative (or technological) arms rivalry was first made by Huntington, 'Arms Races: Prerequisites and Results' (note 1).
25. Glaser, 'Political Consequences of Military Strategy', (note 20), pp. 513–514. On the security dilemma, see John H. Herz, 'Idealist Internationalism and the Security Dilemma', *World Politics*, Vol. II, No. 2 (January 1950), pp. 157–180; and Robert Jervis, 'Cooperation Under the Security Dilemma', *World Politics*, Vol. 30, No. 2 (January 1978), pp. 167–214.  
The logic of the security dilemma is that communication between states is not feasible. A diplomatic point of view, however, such as that aimed at in this study, questions this point on the grounds that states would not ordinarily be expected to participate in an international system in which diplomatic communication was denied them.
26. *Strategy and Arms Control* (note 7), p. 34. For another study of arms races based on incomplete information available to the racers of each others' capabilities and intent, see Kydd, 'Arms Races and Arms Control' (note 1).
27. Robert Jervis has argued that states, highlighting threats from adversaries, frequently underestimate the negative impact their own behavior has upon those adversaries. Jervis, 'Hypotheses on Misperception', *World Politics*, Vol. 20, No. 4 (July 1968), pp. 454–479.
28. Glaser, 'Political Consequences of Military Strategy' (note 20), p. 513.
29. *Ibid.*
30. While those distinguishing offensive and defensive weapons primarily focus on the technical features of available weaponry for military purposes, perceptions of the offensive/defensive balance also contribute to this distinction. For example, Jack Levy points out that decisions are based upon the psychological environment of leaders, and '[t]he inherent difficulty of determining the offensive/defensive balance and the alleged tendency of the military to prepare for the last war rather than the next one may result in some profound misperceptions'. Levy, 'The Offensive/Defensive Balance of Military Technology: A Theoretical and Historical Analysis', *International Studies Quarterly*, XXVIII, No. 2 (June 1984), reprinted in Richard K. Betts (ed.), *Conflict after the Cold War*, 3rd edn (New York: Pearson, 2008), p. 428.
31. In practice, arms rivals enter negotiations partly to further understanding of their opposition's capabilities and intentions. For this negotiating motive, see Fred C. Iklé, *How Nations Negotiate* (New York: Columbia University Press, 1964), pp. 48–50.
32. Glaser, 'Political Consequences of Military Strategy' (note 20), pp. 528–529.
33. Robert Jervis, *Perception and Misperception in International Politics* (Princeton, NJ: Princeton University Press, 1976), p. 64.
34. *Ibid.*, p. 66.
35. It might be asked why any arms race should not be integrated into an overall security or political relationship. The answer is that, as conceptualized here, arms racing is essentially an issue of power hierarchy rather than security. When they compete in armaments, the competitors seek more favorable position in the international hierarchy. For an influential study stressing the importance of position in the international hierarchy of states, see Waltz, *Theory of International Politics* (note 3).

- This is not to deny that a key motive competitors may have for doing so is to make themselves more secure. An example of an arms competition in which competitor concern with security was much less important than concern with hierarchy is the Anglo-American naval competition following the First World War.
36. On crisis prevention as a major power concern, see Alexander L. George (ed.), *Managing US-Soviet Rivalry* (Boulder, CO: Westview, 1983), especially the essay by Paul Gordon Lauren, 'Crisis Prevention in Nineteenth-Century Diplomacy', pp. 31–64. The Soviet-American interest in crisis prevention is well documented in George *et al.*, *US-Soviet Security Cooperation* (note 4).
  37. George, 'Incentives for US-Soviet Security Cooperation and Mutual Adjustments', in George *et al.*, *US-Soviet Security Cooperation* (note 4), pp. 644.
  38. For examples of the importance of relative advantage in this connection, see Alexander L. George, 'The Arab-Israeli War of October 1973: Origins and Impact', in *Managing US-Soviet Rivalry* (note 36), pp. 139–154; and, in the same volume, Larry C. Napper, 'The African Terrain and US-Soviet Conflict in Angola and Rhodesia: Some Implications for Crisis Prevention', pp. 155–186.
  39. Philip J. Farley explains that arms negotiations are not adequate in themselves as 'an independent or alternate route to common security. If stability is unlikely without arms control, arms control by itself will not do the job. Arms control policy and programs cannot be any better than foreign and defense policy and programs... When overall foreign security policy seeks a cooperative component [in the superpower era] in the US relationship with the Soviet Union, arms control is an important route and element, but one which supplements and moderates, rather than replaces, defense measures'. Philip J. Farley, 'Arms Control and US-Soviet Security Cooperation', in George *et al.*, *US-Soviet Security Cooperation* (note 4), p. 638.
  40. On diplomatic linkage, see Alexander L. George, 'Strategies for Facilitating Cooperation', in George *et al.*, *US-Soviet Security Cooperation* (note 4), pp. 693ff.
  41. *Strategic Stalemate: Nuclear Weapons and Arms Control in American Politics* (New York: St. Martin's Press, 1984), p. 128. See also Morgenthau, *Politics Among Nations* (note 1), pp. 392ff. See also William A. Schwartz and Charles Derber, 'Arms Control: Misplaced Focus', *Bulletin of the Atomic Scientists*, Vol. 62 (March 1986), pp. 39–44.
  42. For example, this argument was made by a Panel of Consultants led by Robert Oppenheimer that in 1952 addressed problems of Soviet-American competition, when superpower understandings were weak or nonexistent. See Bundy, *Danger and Survival* (note 4), pp. 288–289.
  43. Barry H. Steiner, *Arms Races, Diplomacy, and Recurring Behavior: Lessons from Two Cases* (Beverly Hills and London: Sage Professional Paper in International Studies 02-013, 1973).
  44. Adam Watson, *Diplomacy* (Philadelphia: ISHI Publications, 1986), p. 33.
  45. Paul Gordon Lauren, *Force and Statecraft*, 4th edn (New York: Oxford University Press, 2007), p. 154 (emphasis in original).
  46. For the idea that convergent interests are a benchmark of diplomacy that is shaped by non-diplomatic developments, see Barry H. Steiner, 'Diplomacy as Independent and Dependent Variable', *International Negotiation*, VI (2001), pp. 79–104. It was argued there that the *inability* of states with convergent interests to act upon them had to be explained by non-diplomatic causal factors, such as domestic public opinion and widely held political ideologies. But the *ability* of states to act upon convergent interests may also be ascribed to non-diplomatic developments, such as a heightened threat of war, necessitating quick diplomatic agreement.
  47. The practice of insulating relations between great powers from differences over less vital or less consequential international issues (such as defusing small-power civil strife) is developed in Steiner, *Collective Preventive Diplomacy* (Albany, NY: State University of New York Press, 2004).
  48. Bargaining is distinguished from negotiation in Lauren, *Force and Statecraft* (note 45), pp. 153–154.
  49. Glaser, 'Political Consequences of Military Strategy' (note 20), p. 509. Arms agreement may moreover increase tensions as the rivals question whether their adversary has conformed to the agreement's terms, and furthermore whether evidence of the adversary's violation of the agreement reflects its mal-*evolent* intent.
  50. In his essay, 'When Are Arms Races Dangerous? Rational versus Suboptimal Arming' (note 1), p. 45, Charles Glaser contends that 'If a state's security environment necessitates an arms buildup, then arming, as well as the competition that ensues if its adversary responds, is rational', and any dangers of war in that scenario must be attributed to the anarchic international environment and not to the arms race. This is also the approach taken by Colin S. Gray, 'Urge to Compete' (note 1).
  51. One careful recent diplomatic overview of great power diplomacy in the early 19th century failed to acknowledge that the competition was underway and instead observed that 'There was a virtual

- absence of any serious arms race' in the period in question. Lauren, *Force and Statecraft* (note 45), p. 30.
52. Sources for this case include: Richard Cobden, 'The Three Panics', in Cobden, *Political Writings*, Vol. II (London: Ridgway, 1867), pp. 214–435; Bernard Brodie, *Sea Power in the Machine Age* (Princeton: Princeton University Press, 1941), chaps. 3–5; and Huntington, 'Arms Races: Prerequisites and Results' (note 1).
  53. Cobden, 'Three Panics' (note 52), pp. 219–20.
  54. Sources for this case include: Ernest R. May *et al.*, 'History of the Strategic Arms Competition, 1945–1972', Vols. I & II, unpublished study prepared for the Historical Office, Office of the Secretary of Defense, March 1981; Albert Carnesale and Richard N. Haas (eds), *Superpower Arms Control: Setting the Record Straight* (Cambridge, MA: Ballinger, 1987); and a file of newspaper clippings taken from the *New York Times*.
  55. Kahn, 'The Arms Race and Some of its Hazards' (note 1), p. 109.
  56. Smith, *Doubletalk* (note 24), p. 30.
  57. Robert M. Gates, *From the Shadows* (New York: Simon & Schuster, 2002), pp. 46–47.
  58. President Eisenhower's personal concern for the U-2 program is spelled out in *Foreign Relations of the United States (1958–1960)*, Vol. I (Washington, DC: United States Government Printing Office, 1993).
  59. Gates, *From the Shadows* (note 57), p. 44.
  60. Bruno Tertrais, 'Do Arms Races Matter?' in Lennon, *Contemporary Nuclear Debates* (note 1), p. 217.
  61. One major study described superpower arms rivalry prior to 1948 as 'almost exclusively political'. May *et al.*, 'History of the Strategic Arms Competition' (note 54), p. 280.
  62. In practice, the case material reflected not only variance in the independent variables between cases but also variations *within* one of our two cases, the superpower rivalry. The latter finding suggests that fully developed theory should allow for changeability within cases, and conceptualizations in our independent variables needs to be sharpened further. Given the preliminary state of the work reported upon here, this point is neglected in the analysis that follows.
  63. Weber, *Cooperation and Discord* (note 1), p. 39.
  64. For an argument against convergent cultures, see Gray, *House of Cards* (note 4). Despite stressing the objective security that strike-back nuclear forces provide, Weber has criticized superpower arms control negotiations because they 'wreak[ed] havoc with the political component of Soviet-American relations. SALT ransomed politics to unrealistic expectations about the convergence of [superpower] strategic and military cultures'. Weber, 'Cooperation and Interdependence', in Fairbanks and Shulsky, 'Arms Control: Thirty Years On' (note 4), p. 191.
  65. Brodie, *Sea Power in the Machine Age* (note 52), p. 253.
  66. Huntington, 'Arms Races: Prerequisites and Results', (note 1), p. 109.
  67. As an example of diplomatic fashion, Anglo-French tensions in the New World were largely excluded from the diplomatic agenda, the British and French governments seeking maximum flexibility until war finally made negotiation necessary. Patrice Louis-René Higonnet, 'The Origins of the Seven Years' War', *Journal of Modern History*, XL (March 1968), p. 78.
  68. Gates, *From the Shadows* (note 57), p. 41.
  69. *Ibid.*, p. 47.
  70. On the Pakistan–India competition, see Sumit Ganguly and S. Paul Kapur (eds), *Nuclear Proliferation in South Asia: Crisis Behaviour and the Bomb* (New York: Routledge, 2009); and Scott D. Sagan (ed.), *Inside Nuclear South Asia* (Stanford, CA: Stanford University Press, 2009). On the US–North Korean competition, see Leon V. Sigal, *Disarming Strangers* (Princeton, NJ: Princeton University Press, 1998); Joel S. Wit, *et al.*, *Going Critical* (Washington, DC: Brookings, 2004); and Michael O'Hanlon and Mike Mochizuki, *Crisis on the Korean Peninsula* (New York: McGraw-Hill, 2003).