

**SECOND-STRIKE NUCLEAR  
FORCES AND NEOREALIST  
THEORY: UNIT-LEVEL  
CHALLENGE OR BALANCE-OF-  
POWER POLITICS AS USUAL?**

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**ABSTRACT:**

What are the implications of second-strike nuclear forces for neorealism? The end of the Cold War yielded a unipolar structure of international politics defined by the military, economic, and political preponderance of the United States. According to balance-of-power theory, which lies at the heart of neorealism, unipolarity has a short life span as secondary states waste little time in rectifying the global imbalance of power. Thus far, America remains unbalanced. Are we to take this as a refutation of balance-of-power theory? My thesis argues that second-strike arsenals render void the need to balance superior American military power. But because state survival is contingent not only upon military invulnerability (for which nuclear weapons are a sure guarantee), but also upon economic invulnerability (for which there is no absolute remedy), nuclear-weapon states are impelled to balance superior economic power for security reasons. By recasting balance-of-power theory in light of these assumptions, one can make sense of the great-power politics of the post-Cold War era.

**DECLARATION:**

“This work is substantially my own, and where any part of this work is not my own, I have indicated this by acknowledging the source of that part or those parts of the work.”

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## CHAPTER 1: INTRODUCTION

Balance-of-power theory, central to neorealism<sup>1</sup>, is here subjected to a unit-level challenge: nuclear weapons. Specifically, what are the implications of second-strike nuclear forces for balance-of-power theory in the post-Cold War era? Balance-of-power theory is derived from neorealism, itself a systems-theory of international politics. Its systemic nature implies the predominance of structure over agency, or systems-level causes over unit-level causes, in explaining the outcomes of state behaviour. Nuclear weapons, properly viewed, are a unit-level variable.<sup>2</sup> In neorealist theory, unit-level forces do not assume major causal importance. In the present context, however, it is argued that nuclear weapons impact importantly upon the structure of the international system, and thus have important implications for balance-of-power theory. Hence, the analysis undertaken herein investigates the nexus between balance-of-power theory and nuclear weapons, a little-explored issue in international relations theory.<sup>3</sup>

The demise of the Soviet Union transformed the international system's structure from one of bipolarity to one of unipolarity. And American unipolarity, in balance-of-power theory, is expected to be relatively short-lived, as secondary states work to rectify the global imbalance of power. Thus far, this expectation has not been borne out, at least not in the manner intended by most proponents of balance-of-power theory. In particular, the thesis asks why no significant efforts have been undertaken by the secondary states to balance the United States militarily, considering that such a military balance of power *is* within their reach? My argument confronts this dilemma, and posits that second-strike nuclear forces obviate the need for nuclear-weapon states to balance superior military power. Because state survival can

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<sup>1</sup> Neorealism is developed in Kenneth Waltz, *Theory of International Politics*, Addison-Wesley, Reading, 1979. Balance-of-power theory henceforth denotes Waltz's formulation of the theory.

<sup>2</sup> As Waltz writes, referring to nuclear weapons, "a change of military technology" represents "a change at the unit level". Quoted in Kenneth Waltz, "The Origins of War in Neorealist Theory," *Journal of Interdisciplinary History*, vol. 18, no. 4, 1988, p. 626

<sup>3</sup> Cf. Steve Weber, "Realism, Detente, and Nuclear Weapons," *International Organization*, vol. 44, no. 1, 1990, p. 59 for an important, and self-acknowledged, exception.

be threatened economically, I show that balancing among nuclear-weapon states is channelled away from the military realm and into the economic realm of international politics.

The thesis therefore sets itself four tasks, each of which constitutes a separate chapter. Hence chapter 1 examines and assesses existing statements of balance-of-power theory in the context of post-Cold War unipolarity. Critical attention is then directed toward the more recent neorealist scholarship that has sought to fine-tune Kenneth Waltz's parsimonious theory, and asks whether these theoretical efforts constitute an improvement over Waltz's original theory. Because on the whole they do not, the path is paved for Waltz's sparse theory to serve as the subject of my investigation. Next, chapter 2 analyses the impact of nuclear weapons upon the assumptions of balance-of-power theory. The argument in this chapter forms the theoretical bedrock upon which the remainder of the thesis rests. It asserts that minimum deterrent arsenals are sufficient to render void any further balancing of superior military power, conventional or nuclear. By first laying down the case for minimum deterrence, the chapter surveys and critiques the opposing schools of thought in the nuclear deterrence debate. Chapter 3 explores balancing behaviour among nuclear-weapon states. The argument in this chapter finds that, other than military power, only one dimension of power can be wielded by other states to jeopardize a state's prospects of survival: economic power. And unlike military vulnerability, for which nuclear weapons provide an absolute remedy, no such solution is available for states to confront economic vulnerability. Hence the need to balance economic power for reasons of survival. Subsequently, chapter 4 advances and tests the hypothesis that, despite nuclear weaponry's negation of military balancing among the great powers, the latter have been actively engaged in balancing America's preponderant economic power. An evaluation of neorealism's explanatory power in the post-Cold War era concludes the thesis.

## I. BALANCE-OF-POWER THEORY IN THE POST-COLD WAR ERA

In observing a disjunction between unit-level causes and their international effects, Kenneth Waltz concluded that state attributes do not correlate with the outcomes of state behaviour.<sup>4</sup> This led Waltz, the founder of neorealism, to believe that a constraining force interposed between cause and effect, namely, the structure of the international system. A brief consideration of Waltzian structuralism is therefore warranted. Waltz advances a threefold definition of the structure of the international system: (1) the system's anarchic organizing principle; (2) the functional differentiation of the system's units; and (3) the distribution of capabilities<sup>5</sup> within the system.<sup>6</sup> In an anarchic realm, states seeking at a minimum to survive must tend to their own security, since no agent can be counted upon to do so on their behalf. John Mearsheimer, paraphrasing the Protestant work ethic, captures the logic of this self-help system: "In international politics, God helps those who help themselves."<sup>7</sup> Through self-help, states become 'like units'; they are each compelled to perform the same vital functions required to sustain themselves as viable political entities. Given this functional non-differentiation among the system's units, the second definition of structure "drops out".<sup>8</sup> Thus, Waltz argues, states' relative power positions within the anarchic international system tell us much about their likely behaviour.

If theories explain laws, and laws are associations that hold repeatedly, then theories explain continuities.<sup>9</sup> Continuities abound in international politics: war and the formation of balances of power are two major such cases that have been addressed by neorealist theory.<sup>10</sup>

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<sup>4</sup> Waltz, 1979, ch. 4

<sup>5</sup> Capabilities in neorealist theory are broadly defined, as are the "elements of national power" in classical realism. Cf Part 3 of Hans Morgenthau, *Politics Among Nations: The Struggle for Power and Peace*, Knopf, New York, 1948. Waltz's definition of capabilities includes: size of population, territory, resource endowment, economic capacity, political stability, and political competence. Waltz, 1979, p. 131

<sup>6</sup> Waltz, 1979, ch. 5

<sup>7</sup> Quoted in John Mearsheimer, *The Tragedy of Great Power Politics*, W. W. Norton and Co., 2001, p. 33

<sup>8</sup> Waltz, 1979, p. 101

<sup>9</sup> Waltz, 1979, ch. 1

<sup>10</sup> The recurrence of war is dealt with in Kenneth Waltz, *Man, the State, and War: A Theoretical Analysis*, 2<sup>nd</sup> ed. rev., Columbia University Press, New York, 2001 (1959). For a treatment of the recurrence of war in explicitly

It is with the latter that we are here concerned. François Fénelon, a seventeenth-century French theologian, is reputed to have been the first to identify the recurrence of balances of power as a law-like association, and not merely the result of intentional statecraft.<sup>11</sup> Waltz writes: “If there is any distinctively political theory of international politics, balance-of-power theory is it.”<sup>12</sup> The reasoning is as follows: “states, if they are free to choose, flock to the weaker side; for it is the stronger side that threatens them”.<sup>13</sup> Balancing behaviour can take two forms: internal and external balancing.<sup>14</sup> The former is achieved through measures internal to the state, for instance arms build-ups, the promotion of economic growth, the contriving of clever strategies, etc. The latter is achieved through measures external to the state, namely alliances of stronger or lesser degrees. Which variety of balancing is most prominent depends not only upon the configuration of the international system, of which there are three types - uni-, bi-, and multipolarity - but also upon the power disparities within those configurations.<sup>15</sup> For instance, superpower balancing in the bipolar world of the Cold War (1945-1990) was primarily of an internal nature, seeing as the relatively weak allies added little to either superpower’s relative power.<sup>16</sup>

While systems-level causes (anarchy and the distribution of capabilities) in neorealism “shape and shove”, they do not *determine* state behaviour.<sup>17</sup> This indeterminacy is explained

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neorealist terms, see Kenneth Waltz, “The Origins of War in Neorealist Theory,” *Journal of Interdisciplinary History*, vol. 18, no. 4, 1988. The recurrence of balances of power is dealt with in Waltz, 1979.

<sup>11</sup> Fred Halliday, Justin Rosenberg, & Kenneth Waltz, “Interview with Ken Waltz,” *Review of International Studies*, vol. 24, 1998, p. 382

<sup>12</sup> Quoted in Waltz, 1979, p. 117

<sup>13</sup> Quoted in *ibid*, 1979, p. 127

<sup>14</sup> Waltz, 1979, ch. 6

<sup>15</sup> Wohlforth, for instance, argues that in the present unipolar world, the power disparity between the United States and the rest of the world is unprecedented in international history. Such a power gap makes both internal and external forms of balancing useless and even counterproductive. William Wohlforth, “The Stability of a Unipolar World,” *International Security*, vol. 24, no. 1, 1999

<sup>16</sup> Waltz, 1979, ch. 8

<sup>17</sup> Quoted in Kenneth Waltz, “Reflections on *Theory of International Politics: A Response to My Critics*,” in Robert Keohane, ed., *Neorealism and Its Critics*, Columbia University Press, New York, 1986, p. 343. Fareed Zakaria makes this mistake in his “Realism and Domestic Politics: A Review Essay,” in Michael Brown, Sean Lynn-Jones, & Steven Miller, eds., *The Perils of Anarchy: Contemporary Realism and International Security*, MIT Press, Cambridge, 1995, p. 465, when he states that “systemic pressures determine states’ foreign policy behavior”.

by the fact that while all states are subject to structural pressures in varying degrees, how they react to those pressures is a matter of their choosing.<sup>18</sup> Waltz argues that states *choose* to restrict their behaviours to those that will not call forth dangerous balancing behaviour on the part of others. In systems-theory parlance, the international system's 'selector' rewards certain behaviours and punishes others.<sup>19</sup> Such a selection process underlies the socializing influence of the system, which in turn offers states a bleak choice: conform and prosper, or rebel and perish. Charles V, Napoleon Bonaparte, Kaiser Wilhelm II, and Adolf Hitler chose the latter and suffered condignly.<sup>20</sup>

My rationale for limiting the present analysis to the post-Cold War world is due simply to the fact that this era has been coterminous with the era of unipolarity. The Soviet Union's retreat from superpower status in the late 1980s brought about the dissolution of bipolarity and yielded a unipolar structure of international politics defined by the military, economic, technological, and political preponderance of the U.S. And in balance-of-power theory, unipolarity is the least stable structure of the international system.<sup>21</sup> Because secondary states cannot be sure as to how the hegemon will dispose of its international pre-eminence, the logic of anarchy compels them to err on the side of caution and counterbalance the hegemonic power, provided they possess the means to do so. As Waltz laments, "[t]he lesson would seem to be clear: in international politics, success leads to failure. The excessive accumulation of power by one state or coalition of states elicits the opposition of others."<sup>22</sup> What, then, are we to make of the present American "unipolar moment" so celebrated by Charles Krauthammer?<sup>23</sup> Christopher Layne, a disciple of Waltz, imputes in his aptly titled

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<sup>18</sup> Waltz, 1979, p. 68

<sup>19</sup> Waltz, 1986, pp. 330-1

<sup>20</sup> Kenneth Waltz, "Nuclear Myths and Political Realities," *American Political Science Review*, vol. 84, no. 3, 1990, p. 743

<sup>21</sup> Kenneth Waltz, "Structural Realism after the Cold War," *International Security*, vol. 25, no. 1, 2000, p. 27. [Henceforth Waltz, 2000(i).] For an interesting albeit dissenting view, see Wohlforth, 1999.

<sup>22</sup> Quoted in Kenneth Waltz, "Nuclear Myths and Political Realities," *American Political Science Review*, vol. 84, no. 3, 1990, p. 743

<sup>23</sup> Charles Krauthammer, "The Unipolar Moment," *Foreign Affairs*, vol. 70, no. 1, 1990/1991



“The Unipolar Illusion: Why New Great Powers Will Rise” that “the “unipolar moment” is just that, a geopolitical interlude that will give way to multipolarity”.<sup>24</sup> In brief, balance-of-power theory argues that American primacy will induce balancing behaviour on the part of secondary states.<sup>25</sup> Having laid down the theoretical foundation of balance-of-power theory in the post-Cold War era, a discussion of more recent efforts to expand the scope of neorealism is in order.

## II. THE NEOREALIST RESEARCH PROGRAM

It is now fashionable to designate neorealism as a Lakatosian research program, within which much of the theorising of the last three decades has sought to expand its explanatory boundaries. In the language of the methodology of scientific research programs (MSRP), neorealism, by virtue of its post-1979 theoretical development, is largely considered a ‘progressive’ research program. And yet, upon closer scrutiny, much of this work has constituted a theoretical regress, as theorists have engaged in the profligate and unnecessary proliferation of variables that have detracted from Waltz’s original and parsimonious systemic statement of neorealist theory. Fareed Zakaria lamented in 1992 the increasing reversion to unit-level explanations (‘innenpolitik’) amongst the second generation of neorealists, and yet by the end of the decade was himself criticised for failing to practise what he preached.<sup>26</sup>

Indeed, Jeffrey Legro and Andrew Moravcsik have levelled a sweeping condemnation of this

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<sup>24</sup> Quoted in Christopher Layne, “The Unipolar Illusion: Why New Great Powers Will Rise,” Michael E. Brown, Sean M. Lynn-Jones, & Steven E. Miller, eds., *The Perils of Anarchy: Contemporary Realism and International Security*, MIT Press, Cambridge, 1995, p. 132

<sup>25</sup> Waltz’s own statements on balance-of-power theory in the era of unipolarity are Kenneth Waltz, “The Emerging Structure of International Politics,” *International Security*, vol. 18, no. 2, 1993; Waltz, 2000(i); and Kenneth Waltz, “Intimations of Multipolarity,” in Birthe Hansen & Bertel Heurlin, eds., *The New World Order: Contrasting Theories*, Macmillan, London, 2000, all of which argue that the post-Cold War unipolar system will be relatively short-lived. In addition to Waltz’s own writings, two works of his former student Christopher Layne paint the same picture: Layne, 1995; and Christopher Layne, “The Unipolar Illusion Revisited: The Coming End of the United States’ Unipolar Moment,” *International Security*, vol. 31, no. 2, 2006.

<sup>26</sup> Fareed Zakaria, 1995, esp. pp. 475-81. His critique is not limited to Jack Snyder, whose book *Myths of Empire* is the subject of Zakaria’s review essay. In relation to Zakaria’s own reversion to unit-level explanations, see the following footnote.

recent neorealist theorizing, which they aptly term “minimal realism” because of its tenuous links with the ‘hard core’ of the neorealist research program.<sup>27</sup> For them, the “degeneration of contemporary realism” proceeds apace as so-called neorealists continue to appropriate reductionist explanations of state behaviour all the while insisting on their neorealist credentials.<sup>28</sup> A critical consideration of the major writings representing this recent scholarship is therefore in order.

Balance-of-threat theory, as formulated by Stephen Walt, argues that balance-of-power theory too narrowly ascribes balancing behaviour to variations in the distribution of capabilities within the international system.<sup>29</sup> In contrast, balance-of-threat theory posits that states balance not *solely* against power but against levels of threat, which in turn are a function of four principal factors: (1) aggregate power; (2) geographic proximity; (3) offensive capabilities; (4) offensive intentions.<sup>30</sup> Walt takes as example the alliances of the Cold War superpowers, and asks why European states did not balance against the U.S., given the latter was militarily and economically more powerful than the Soviet Union.<sup>31</sup> Balance-of-threat theory seemingly provides the answer: Soviet power, greater proximity to Western Europe, offensive forces, and outwardly hostile ideology ensured a more worrisome threat assessment amongst Western European states of Moscow than of Washington. Theories are like maps; they condense and simplify a complex realm.<sup>32</sup> Their utility lies in their sparsity. In the above application of balance-of-threat theory, however, one is hard pressed to differentiate the theory from the reality it seeks to explain. Were the ideal map of France the size of

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<sup>27</sup> Jeffrey Legro and Andrew Moravcsik, “Is Anybody Still a Realist?” *International Security*, vol. 24, no. 2, 1999. Their critique is primarily targeted at defensive and neoclassical realists. *Ibid*, 1999, p. 6.

<sup>28</sup> Reductionism is unit-level explanation.

<sup>29</sup> Balance-of-threat theory was first elucidated (although not coined) in Stephen Walt, “Alliance Formation and the Balance of World Power,” Michael E. Brown, Sean M. Lynn-Jones, & Steven E. Miller, eds., *The Perils of Anarchy: Contemporary Realism and International Security*, MIT Press, Cambridge, 1995, and subsequently elaborated (and coined) in Stephen Walt, *The Origins of Alliances*, Cornell University Press, Ithaca, 1987.

<sup>30</sup> Walt, 1995, pp. 214-8; Walt, 1987, ch. 2

<sup>31</sup> Walt, 1995, pp. 238-44

<sup>32</sup> I have appropriated the analogy from John Lewis Gaddis, *The Landscape of History: How Historians Map the Past*, Oxford University Press, New York, 2002, p. 32

France, few would find it useful. Yet Walt makes this very same error, and in doing so, distances himself from the systemic level of analysis (which is the defining feature of neorealism). As Waltz notes: “Reality is complex; theory is simple.”<sup>33</sup>

Within neorealism, another debate has pitted offensive realism against defensive realism. Offensive realism has five elementary assumptions: (1) the international system is anarchic and is populated by like units (states); (2) states have offensive capabilities; (3) states can never be certain of any other state’s present or future intentions; (4) states desire above all to survive; and (5) states are rational.<sup>34</sup> Despite the fact that offensive realism accepts many of Waltz’s fundamental assumptions, this does not hold for the fifth assumption; Waltz does not explicitly, or even implicitly, invoke the rational actor model assumed in offensive realism.<sup>35</sup> This latter point aside, the differences between offensive realism and Waltzian neorealism only come to the fore after the five assumptions of offensive realism are combined (as Mearsheimer suggests they should in order to grasp the implications of the theory).<sup>36</sup> The two strands of neorealism diverge over the question of how much power states desire. Mearsheimer sees an increase in a state’s relative power as an increase in that state’s security, and from this deduces the logical conclusion that the greatest amount of relative power correlates with the greatest amount of security.<sup>37</sup> Thus, offensive realism implies not only

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<sup>33</sup> Quoted in Waltz, 1997, p. 913

<sup>34</sup> Mearsheimer, 2001, ch. 2, esp. pp. 30-32. Offensive realism was first outlined, albeit in rather rudimentary form, in John Mearsheimer, “Back to the Future: Instability in Europe After the Cold War,” in Michael E. Brown, Sean M. Lynn-Jones, & Steven E. Miller, eds., *The Perils of Anarchy: Contemporary Realism and International Security*, MIT Press, Cambridge, 1995, esp. pp. 85-86. Its definitive exposition is in Mearsheimer, 2001.

<sup>35</sup> Waltz, 1979, p. 118; Waltz, 1986, pp. 330-1. Indeed, in a 2003 lecture, Waltz states that if one were a realist, s/he would know that states do not behave rationally. He then asks rhetorically what it means for a person to be rational, implying that such an issue is simply not amenable to adequate definition. The lecture is made available online at [http://globetrotter.berkeley.edu/911/courses/web\\_resources.html](http://globetrotter.berkeley.edu/911/courses/web_resources.html) by the Institute of International Studies, UC Berkeley.

<sup>36</sup> Mearsheimer, emphasizing the need to combine the assumptions to reveal their implications, uses the analogy of a blender in a 2002 lecture at the University of California-Berkeley on the future of Sino-American relations. The lecture is made available online at [http://globetrotter.berkeley.edu/911/courses/web\\_resources.html](http://globetrotter.berkeley.edu/911/courses/web_resources.html) by the Institute of International Studies, UC Berkeley. A good discussion of the differences between Waltzian neorealism and offensive realism is found in John Mearsheimer, “Conversations in International Relations: Interview with John J. Mearsheimer (Part II),” *International Relations*, vol. 20, no. 2, 2006

<sup>37</sup> Mearsheimer, 2001, pp. 32-36

security maximization but also relative-power maximization (in stark contrast to Waltzian neorealism). Furthermore, Mearsheimer believes that states exhibit buck-passing behaviour more often than they do balancing behaviour, arguing that states prefer not to shoulder the responsibility of containing rival powers but instead attempt to deflect the task onto other states.<sup>38</sup>

Defensive realism incorporates offence-defence theory (ODT) into Waltzian neorealism.<sup>39</sup> Starting with Waltz's sparse structural model, defensive realism adds to it considerations of the offence-defence balance (ODB), which conveys whether the defence or the offence has the advantage. The ODB is a product of numerous unit-level factors. In its sparser formulation, the ODB is determined on the basis of two variables: (1) military technology; and (2) geography.<sup>40</sup> In its denser formulation, the ODB is measured more broadly, and takes into consideration the following: technology, geography, force size, nationalism, and the cumulativeness of resources (ie the ability to extract resources from conquered territory).<sup>41</sup> Viewed as such, state behaviour is dependent upon whether the international system is defence- or offence-dominant; the former makes possible the mitigation of the security dilemma, the latter exacerbates it. Defensive realism is sometimes accorded another meaning: that states are "defensive positionalists" insofar as they are status-quo powers simply intent upon preserving their relative power positions within the

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<sup>38</sup> Ibid, 2001, ch. 8

<sup>39</sup> ODT is basically an attempt to explain unit-level responses to systems-level constraints, and is therefore considered a supplement to Waltzian neorealism. Charles Glaser and Chaim Kaufmann, "What Is the Offense-Defense Balance and Can We Measure It?" in Michael Brown, Owen Coté Jr., Sean Lynn-Jones, and Steven Miller, eds., *Offense, Defense, and War*, MIT Press, Cambridge, 2004, p. 283. The distinction between defensive and offensive realism was first made by Jack Snyder in his 1991 *Myths of Empire: Domestic Politics and International Ambition*, although Snyder used the term "aggressive Realism" to denote offensive realism. Quoted in Jack Snyder, *Myths of Empire: Domestic Politics and International Ambition*, Cornell University Press, Ithaca, 1991, p. 12. John Mearsheimer makes the distinction in his *The Tragedy of Great Power Politics*, Norton, New York, 2001, p. 18ff; Robert Jervis similarly makes the distinction, albeit through game theoretic analysis, in his "Realism, Neoliberalism, and Cooperation: Understanding the Debate," *International Security*, vol. 24, no. 1, 1999, pp. 48-50. Waltz's views on the distinction are noted below.

<sup>40</sup> The founding work on ODT, and a classic statement of its sparser formulation, is Robert Jervis, "Cooperation Under the Security Dilemma," *World Politics*, vol. 30, no. 2, 1978. Another seminal work on ODT, which specifically analyses the offensive/defensive value of military technology, is George Quester, *Offense and Defense in the International System*, John Wiley & Sons, New York, 1977.

<sup>41</sup> The classic exposition of the denser formulation is Glaser and Kaufmann, 2004, esp. pp. 283-289.

international system.<sup>42</sup> This view is frequently, albeit incorrectly, attributed to Waltz himself. Importantly, Waltz argues that the distinction between this latter form of defensive realism and offensive realism is not an appropriate one. He has this to say on the matter: “Realist theory, properly viewed, is neither offensive nor defensive. ... Whether the best way to provide for one’s security is by adopting offensive or defensive strategies varies as situations change. A state having too much power may scare other states into uniting against it and thus become less secure. A state having too little power may tempt other states to take advantage of it. Realism is best left without an adjective to adorn it.”<sup>43</sup>

Contingent realism, formulated by Charles Glaser, is a variant of defensive realism, but nonetheless modifies certain of Waltz’s assumptions and reinterprets one of Waltz’s key variables (the distribution of capabilities). Glaser makes three arguments: (1) Waltzian neorealism has an unwarranted “competition bias”.<sup>44</sup> He argues that arms control (cooperation) may be preferable to arms racing (competition) if risk-averse states are unsure as to the outcomes of an arms race (which could well be worse for both parties than mutual cooperation)<sup>45</sup>; (2) the distribution of capabilities should be reformulated so as to refer to the ability of states to undertake military missions, which is a function of the ODB<sup>46</sup>; (3) states can signal their motives via their military policies and hence alleviate much of the uncertainty inherent in international politics.<sup>47</sup> Such military policies include arms control, unilateral defence, and unilateral restraint. These are particularly potent, for example, if offence has the advantage, and can hence reveal a state’s benign motives.<sup>48</sup> Glaser nonetheless succumbs to

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<sup>42</sup> Quoted in Joseph Grieco, “Anarchy and the Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism,” *International Organization*, vol. 42, no. 3, 1988, p. 500n.

<sup>43</sup> Quoted in Kenneth N. Waltz, “Neorealism: Confusions and Criticisms,” *Journal of Politics and Society*, vol. XV, 2004, p. 6

<sup>44</sup> Quoted in Charles Glaser, “Realists as Optimists: Cooperation as Self-Help,” in Michael E. Brown, Sean M. Lynn-Jones, and Steven E. Miller, eds., *The Perils of Anarchy: Contemporary Realism and International Security*, MIT Press, Cambridge, 1995, p. 386.

<sup>45</sup> *Ibid*, 1995, p. 387

<sup>46</sup> *Ibid*, 1995, p. 387

<sup>47</sup> *Ibid*, 1995, p. 394

<sup>48</sup> *Ibid*, 1995, pp. 394-397

the temptation of reductionism; by incorporating ODT and military signalling into neorealism, he merely imports unit-level causes into a systemic theory.

Neoclassical realism explicitly abandons both parsimony and the search for universal theories in its effort to fashion explanatory accounts, or descriptions, of individual states' foreign policies.<sup>49</sup> To explain a particular state's international behaviour, neoclassical realists acknowledge, one must start with the systemic level of analysis in neorealist theory in order to determine the structural constraints and opportunities created by the international system. Having delineated these constraints and dispositions, they investigate how different states perceive and then respond to them differently.<sup>50</sup> Neoclassical realism thus deals in theory of foreign policy, and not in theory of international politics. Moreover, in exploring unit-level responses to systems-level stimuli, neoclassical realism stresses the need for "bringing the state back in".<sup>51</sup> Contrary to the Waltzian assumption that states are "like units" merely intent upon surviving, neoclassical realists seek to differentiate state interests. Randall Schweller captures this thinking in his study of bandwagoning in international politics, and why it is more frequently practised than is commonly thought.<sup>52</sup> Specifically, he enumerates four categories of state identities, each of which is named after an animal believed to symbolize the respective interests: (1) lions; (2) lambs; (3) jackals; and (4) wolves.<sup>53</sup> Lions and lambs are status-quo powers; the former, because they stand to lose more, simply cherish their possessions more than do the latter. Jackals and wolves are revisionist states; the latter, with greater appetites for gains, are merely less risk-averse than are the former. In factoring the "balance of interests" into Waltzian neorealism, Schweller argues, a clearer understanding of

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<sup>49</sup> A classic review of neoclassical realist scholarship is Gideon Rose, "Neoclassical Realism and Theories of Foreign Policy," *World Politics*, vol. 51, no. 1, 1998. See esp. p. 166.

<sup>50</sup> Intervening variables such as perceptions and domestic state structure interpose between systemic constraints and unit-level responses. Rose, 1998, p. 152

<sup>51</sup> Quoted in Rose, 1998, p. 160

<sup>52</sup> Randall Schweller, "Bandwagoning for Profit: Bringing the Revisionist State Back In," *International Security*, vol. 19, no. 1, 1994

<sup>53</sup> Schweller, 1994, pp. 277-81

how states behave internationally is made possible.<sup>54</sup> The addition of unit-level factors to an otherwise sparse systems-level theory is, however, akin to adjusting the theory of gravity to account for leaves blown upwards by the wind; the resultant increase in descriptive accuracy is not to be conflated with greater explanatory power.

Hence, this appraisal of recent “minimal realist” scholarship readily reveals two major defects. Firstly, this body of work misinterprets the merits of parsimony and the purpose of science. As Auguste Comte, the founder of positivism and the person most responsible for instituting the scientific method in the study of social phenomena, remarked: “We see that it is the nature of positive philosophy to regard all phenomena as subject to invariable natural laws, the discovery of which, *and their reduction to the least possible number*, is the aim and end of all our efforts”.<sup>55</sup> Minimal realism, however, has evinced a propensity for much the converse. Secondly, the surveyed work represents a departure from the systemic level of analysis, which would be trivial were a focus on systems-level causes not the *defining* characteristic of neorealist theory. Legro and Moravcsik put it thus: “The result is that many realists now advance the very assumptions and causal claims in opposition to which they traditionally, and still, claim to define themselves.”<sup>56</sup> MSRP may provide an effective lens through which to view neorealism, but it is not without its drawbacks. In particular, Waltz regrets that research programs, whether ‘progressive’ or ‘degenerative’, may ignore and abandon certain potent *individual* theories embedded within them.<sup>57</sup> This happens to be the case with regard to the neorealist research program. It is chiefly for this reason that the

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<sup>54</sup> Quoted in *ibid*, 1994, p. 276

<sup>55</sup> Quoted in Stanislav Andreski, ed., *The Essential Comte*, selected from Auguste Comte, *Cours de Philosophie Positive*, Barnes & Noble Books, New York, 1974, translated and annotated by Margaret Clarke, p. 24. My emphasis. Comte’s use of the term “positive philosophy” is synonymous with positivism, a word he coined to denote a *positive* view of the applicability of the scientific method to both natural *and* social phenomena. *Ibid*, 1974, p. 9

<sup>56</sup> Quoted in Legro and Moravcsik, 1999, p. 6

<sup>57</sup> Waltz makes this case in Kenneth Waltz, “Foreword: Thoughts about Assaying Theories,” in Colin Elman and Miriam Fendius Elman, eds., *Progress in International Relations Theory: Appraising the Field*, MIT Press, Cambridge, 2003

remainder of the thesis deals solely with Waltzian neorealism, deemed here its research program's better theory.

### **III. THE RESEARCH PROBLEM: RECONCILING BALANCE-OF-POWER THEORY WITH THE NUCLEAR REVOLUTION**

Having settled on, and justified my use of, Waltzian neorealism as the subject matter of this thesis, a clarification of my research problem is now possible.<sup>58</sup> Section I outlined what balance-of-power theory predicts in the post-Cold War era. Notwithstanding the expectation that unipolarity will have a short lifespan, the fact remains that American military, economic, technological, and political preponderance perseveres. Writing shortly after the dissolution of the Soviet Union, Layne predicted the return of multipolarity between 2000 and 2010. In 2006, he believed balance-of-power theorists (himself included) had wrongly predicted the implications of unipolarity for three reasons: (1) they ignored the incentives to bandwagon with the United States; (2) they underrated the domestic impediments to balancing American power faced by leaders of secondary states; and (3) they believed it would be easier to balance against Washington than it has been.<sup>59</sup> He nevertheless readjusted his prediction for the return of multipolarity, this time claiming the unipolar world will be through by 2030.<sup>60</sup> Reminding us that balance-of-power theory is indeterminate, Waltz writes that neorealism “is better at saying what will happen than in saying when it will happen. Theory cannot say when “tomorrow” will come because international political theory deals with the pressures of structure on states and not with how states will respond to the pressures.”<sup>61</sup> He nevertheless insists that a balance of power, “in historical perspectives, ...will come in the blink of an eye.”<sup>62</sup> Glaser, convinced that neorealism has been in trouble in the post-Cold War era, seeks

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<sup>58</sup> Neorealism will henceforth be used to denote Waltzian neorealism.

<sup>59</sup> Layne, 2006, p. 10

<sup>60</sup> Ibid, 2006, p. 39

<sup>61</sup> Quoted in Waltz, 2000(i), p. 27

<sup>62</sup> Quoted in ibid, 2000(i), p. 30



to reconcile it with the actual state of affairs by adding unit-level variables to plug the apparent ‘holes’ in Waltz’s original theory.<sup>63</sup> It therefore appears that, when confronted with the question as to why the “unipolar moment” continues to endure, one of two responses is given: (1) too little time has passed for a balance of power to form; and (2) balance-of-power theory is able to account for the discrepancy once auxiliary unit-level explanations are brought forth to supplement it. The first solution is convenient, and cannot be decisively refuted; the second solution is reductionist. Can this seeming disjunction between theory and reality be resolved without recourse to either of these solutions?

I argue that this disjunction results from a failure to confront the implications of the nuclear revolution for balance-of-power theory. The relevant literature on balance-of-power theory has until now largely avoided what is deemed here the vital question: does balance-of-power theory apply equally well in conventional and nuclear worlds?<sup>64</sup> I claim that for balance-of-power theory to hold in the nuclear era, in its original and parsimonious formulation, a core assumption (not a variable) must be introduced: that second-strike nuclear arsenals render void the need to balance superior military power broadly conceived. Recasting balance-of-power theory in this fashion permits the theory to apply as effectively in the nuclear era as it does in a conventional world, as attention is turned away from the military sphere and towards the economic dimension of international politics.

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<sup>63</sup> Charles Glaser, “Structural Realism in a More Complex World,” *Review of International Studies*, vol. 29, 2003

<sup>64</sup> Two exceptions to this failure to confront the nuclear revolution and its implications for balance-of-power theory need mentioning. Mearsheimer has touched upon this issue in passing; his conclusions on the matter, however, run counter to my findings in chapter 2. Cf. Mearsheimer, 1990, esp. p. 112. Layne has referred to the issue in a footnote, and like Mearsheimer, believes the nuclear revolution impacts little upon the dynamics of military competition in neorealist theory. Indeed, Layne’s footnote denies what my thesis sets out to accomplish. Layne, 1995, p. 169n

## CHAPTER 2: THE NUCLEAR DETERRENCE DEBATE AND ITS IMPLICATIONS FOR BALANCE-OF-POWER THEORY

Arthur Lee Burns remarked in 1957 that nuclear weapons have “abolished the balance of power”.<sup>65</sup> It is the purpose of this chapter to validate this statement in relation to the military realm of international politics. The subsequent chapters demonstrate why the statement is not, however, applicable to non-military realms of international politics. Here, I present the case that second-strike nuclear forces render void the need to balance superior conventional and nuclear military power. But before any such analysis can be attempted, a definitional issue needs attending. Specifically, what exactly is the scope of military balancing behaviour? Let us recall the logic of balance-of-power theory. States interact in an anarchic international system in which survival is necessarily their primary concern. If a state loses power relative to others, its vulnerability is subsequently heightened, which in turn implies a decrease in its security and therefore in its prospects for survival. Thus, all states share a mutual desire to forestall losses in their respective relative power positions in international politics. And this they do through balancing behaviour. Balancing is, after all, a function of the survival imperative. Hence, balancing is invoked only when a consequential decline in a state’s relative power position is at issue. Military balancing is therefore defined as the military measures undertaken in an attempt to counteract those military capabilities through which others can undermine one’s own relative power.

It is essential not to confound military balancing with military tensions between nuclear-weapon states.<sup>66</sup> Since the dawn of the nuclear age, there has been much of the latter and little of the former. Witness, for instance, the ongoing military tensions between India and

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<sup>65</sup> Quoted in Arthur Lee Burns, “From Balance to Deterrence,” *World Politics*, vol. 9, no. 4, 1957, p. 509

<sup>66</sup> Robert Art is criticised for making this mistake in Robert Art, Stephen Brooks, William Wohlforth, Keir Lieber, and Gerard Alexander, “Correspondence: Striking the Balance,” *International Security*, vol. 30, no. 3, 2005, pp. 186, 190, 195

Pakistan over the disputed Kashmir province. One could interpret the respective Indian and Pakistani military investment in this dispute as a classic case of military balancing among nuclear-armed states. And yet the loss or gain of Kashmir for either side will not alter the balance of power between India and Pakistan in any significant way. Put differently, their respective prospects of survival do not turn upon the loss or gain of Kashmir. As a result, their military activities do not constitute military balancing. Balancing behaviour is *always* directly or indirectly linked to the need and desire to survive. Any other military behaviour is non-balancing behaviour, and thus cannot be explained by balance-of-power theory (a theory predicated on the survival motive). Consequently, the analysis undertaken below intends to show that retaliatory nuclear forces protect against external military attack those interests the loss of which would adversely affect one's relative power. This covers not only a state's manifestly vital interests, which if attacked would *directly* endanger its survival, but also those lesser interests which if attacked would *indirectly* threaten its survival, since such an attack would decrease its relative power and render it more vulnerable to subsequent military action by others.

## **I. SECOND-STRIKE NUCLEAR FORCES AND THE ASSUMPTIONS OF BALANCE-OF-POWER THEORY**

A second-strike capability obtains when a state, having suffered a nuclear first strike from an adversary, retains the means to retaliate with nuclear force.<sup>67</sup> When a retaliatory strike is sufficiently potent to inflict upon an aggressor 'unacceptable damage', the conditions for an assured-destruction capability are met. 'Unacceptable damage,' however, is subjectively measured and is dependent upon a state's strategic culture.<sup>68</sup> It is perhaps not inconceivable

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<sup>67</sup> The concept of a second, retaliatory strike was first discussed by Albert Wohlstetter in his "The Delicate Balance of Terror," *Foreign Affairs*, vol. 37, January 1959. Note that Wohlstetter, however, uses the term "strike-second capability" in the article.

<sup>68</sup> Michael Sheehan, *The Balance of Power: History and Theory*, Routledge, New York, 1996, pp. 174, 177

that the Soviet Union may have tolerated the devastation of one or two of its major cities during the Cold War, especially in light of the 20 odd million deaths it suffered in World War 2, if such were the price for defeating the U.S. More specifically, had Moscow possessed the ability to launch a counterforce strike against the American nuclear arsenal, and was certain to disarm all but a few nuclear warheads which would have subsequently been launched against the Soviet Union, it may well have concluded that this was an acceptable price to pay for victory.<sup>69</sup> Moreover, Mao Tse-tung was fond of claiming that China could tolerate several hundreds of millions of fatalities resulting from a retaliatory blow; lesser levels of relative urbanization, and a highly dispersed rural population meant that many nuclear warheads would have been needed to inflict assured destruction. As for the United States, its tolerance for death and destruction would likely be lower, given its relatively minor losses in international wars and its democratic political culture.<sup>70</sup> One wonders, then, whether strategic culture is easily factored into a nuclear-armed state's nuclear targeting policies, so as to meet the requirements for assured destruction in relation to all potential adversaries.

### **Targeting Requirements for Assured Destruction**

An assured-destruction capability involves countervalue targeting; it seeks to maximize urban-industrial damage. Countries with relatively high levels of urbanization and population density are particularly vulnerable to counter-city strikes. Thus, some American urban planners and others sought to redesign cities in ways that minimised their vulnerability to nuclear attack. The resultant 'defensive dispersal' movement floated ideas such as cluster, ribbon (or linear), and doughnut cities, which would survive atomic attacks.<sup>71</sup> Several civil

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<sup>69</sup> This scenario is discussed in Wohlstetter, 1959, pp. 213-4

<sup>70</sup> I am grateful to Bob Howard, Department of Government and International Relations, University of Sydney, for this, and the preceding point.

<sup>71</sup> Bernard Brodie, "Implications for Military Policy," in Bernard Brodie, ed., *The Absolute Weapon: Atomic Power and World Order*, Harcourt, Brace and Company, New York, 1946, pp. 99-106; Robert Kargon and

defence initiatives, including the 1951 Industrial Dispersal Policy, the 1954 National Housing Act (which encouraged suburbanisation), and the 1956 Federal Aid Highway Act designating “Interstate and Defense Highways”, were also induced by the bomb.<sup>72</sup> The advent of thermonuclear weapons thousands of times more powerful than atomic bombs dealt ‘defensive dispersal’ an almost lethal blow, as fall-out now threatened even those city dwellers that survived the initial blast.<sup>73</sup> Where countries with relatively low urban concentration levels are concerned, their assured destruction will depend more on the immediate and longer-term effects of radiation, genetic effects, and the effects of strontium-90, all of which are produced by fall-out.<sup>74</sup> Of these, radiation effects are the most immediately lethal. Radiation exposure is measured in roentgens (r’s). Any roentgen dosage greater than 600 r’s is fatal. On March 1, 1954, the United States tested a 13.6 megaton weapon on Bikini Atoll; the average radiation exposure over 11 265 square kilometres in the 24 hours following the test was 938 r’s.<sup>75</sup> Besides, fall-out effects are maximized by the ground bursting of megaton weapons, especially in urban concentrations in which brick constructions are prevalent, given that the silicon in bricks, and the lime in mortar, “become highly radioactive”.<sup>76</sup> The blast, heat, and fall-out effects of nuclear detonations can be exploited to maximize death and destruction in any country. Even China’s highly scattered rural population can, to a large extent, be rather easily irradiated to life-threatening levels by ground-bursting very high-yield warheads in all its major cities.

In addition to population targeting, an assured-destruction capability also involves economic targeting. The most effective type of economic targeting, it has been demonstrated,

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Arthur Molella, “The City as Communications Net: Norbert Wiener, the Atomic Bomb, and Urban Dispersal,” *Technology and Culture*, vol. 45, October 2004, pp. 766-7

<sup>72</sup> Michael Dudley, “Sprawl as Strategy: City Planners Face the Bomb,” *Journal of Planning Education and Research*, vol. 21, 2001, pp. 58-60

<sup>73</sup> Ibid, 2001, p. 56; Kargon and Molella, 2004, p. 777. Still, the movement addressed concepts such as underground and underwater cities, and still greater dispersal, to lessen these radiation effects. Dudley, 2001, p. 56.

<sup>74</sup> Henry Kissinger, *Nuclear Weapons and Foreign Policy*, Harper & Bros., New York, 1957, pp. 73-85

<sup>75</sup> Ibid, 1957, p. 76

<sup>76</sup> Quoted in ibid, 1957, p. 75

is the impairment of an adversary's recovery economy.<sup>77</sup> Counter-recovery targeting is accomplished in one of two ways: (1) the bottleneck approach; (2) the Congreve approach.<sup>78</sup> Bottleneck targeting involves damaging or destroying critical nodes and sectors of an adversary's industrial and economic infrastructure. Bottlenecks are "target systems which contain only a relatively few installations whose destruction would have immediate and disproportionate effects".<sup>79</sup> Examples include fertilizer plants essential for agriculture; ball-bearing factories upon which a wide range of industries depend; and oil refineries vital for everyday civilian applications.<sup>80</sup> To be sure, such a targeting strategy assumes that these bottlenecks are easily identified and hence vulnerable to discriminatory attacks.<sup>81</sup> Surveillance, photo reconnaissance, and human intelligence may go some way in locating bottlenecks, but this may not always be so, in which case use will be made of the Congreve approach whereby indiscriminate attacks on capital infrastructure are prosecuted so as to degrade a country's industrial and economic potential. The Congreve approach employs the following calculus: "The larger the plant in terms of output of goods, the more important it ranks as a target; the type of goods produced is much less important than the estimated value of the goods destroyed."<sup>82</sup> Either way, an adversary's industrial and economic potential is vulnerable to precise, small-scale attacks.

Nuclear strategists have often exaggerated any given economy's ability to recovery from a nuclear exchange. During the Cold War, influential American economic recovery analyses claimed that the Soviet Union could recover from an all-out U.S. nuclear strike in 4-

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<sup>77</sup> Desmond Ball, "U.S. Strategic Forces: How Would They Be Used?" in Steven Miller, ed., *Strategy and Nuclear Deterrence*, Princeton University Press, Princeton, 1984, p. 237

<sup>78</sup> Ibid, 1984, p. 237

<sup>79</sup> Quoted in *ibid*, 1984, p. 237

<sup>80</sup> Ibid, 1984, p. 237; Michael Kennedy and Kevin Lewis, "On Keeping Them Down; or, Why Do Recovery Models Recover So Fast?" in Desmond Ball and Jeffrey Richelson, eds., *Strategic Nuclear Targeting*, Cornell University Press, Ithaca, 1986, p. 205

<sup>81</sup> Ball, 1984, p. 237; Kennedy and Lewis, 1986, p. 206-7

<sup>82</sup> Ball, 1984, pp. 237-8

15 years.<sup>83</sup> Michael Kennedy and Kevin Lewis, in a critical dissection of recovery analysis, ask “Why Do Recovery Models Recover So Fast?”<sup>84</sup> Their study examined the assumptions underlying optimistic recovery models, and found them wanting on several scores. Optimistic recovery models are predicated on the following three assumptions: (1) the shiftability of investment, whereby investment goods output can be freely employed to rebuild “any kind of capital” in a post-attack environment<sup>85</sup>; (2) the ability of the leadership of the post-attack economy to prioritise the rebuilding of more important economic sectors; and (3) “capital-labor substitution”<sup>86</sup>, implying the shiftability of labor and capital between different economic sectors even after a nuclear attack.<sup>87</sup> Together, these assumptions drive down the recovery times of a post-attack economy. However, each of these assumptions is respectively flawed for the following reasons: (1) the non-shiftability of investment, whereby investment goods output is not simply a “homogenous” entity that can be channelled into the production of all types of capital goods<sup>88</sup>; (2) the ability to prioritise is belied by the fact that there is likely to be little economic coordination in the aftermath of a nuclear attack; and (3) the shiftability of labour and capital between various economic sectors may be constrained in a post-attack environment.<sup>89</sup> Optimistic economic recovery models are further tainted by the fact that they ignore other critical assumptions. For instance, given that there is likely to be little “capital labor substitutability” in a post-attack environment, the survival of skilled labour has been (in previous conflicts) and will continue to be “the linchpin of recovery”.<sup>90</sup> The earlier discussion of population targeting, however, does not bode well for the survival of skilled labour, most of which is located in a country’s major cities (which are the primary target sets for an assured-destruction capability).

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<sup>83</sup> Kennedy and Lewis, 1986, p. 195

<sup>84</sup> Quoted in *ibid*, 1986, p. 194

<sup>85</sup> Quoted in *ibid*, 1986, p. 200

<sup>86</sup> Quoted in *ibid*, 1986, p. 203

<sup>87</sup> *Ibid*, 1986, pp. 200-3

<sup>88</sup> Quoted in *ibid*, 1986, p. 205

<sup>89</sup> *Ibid*, 1986, pp. 204-5

<sup>90</sup> Quoted in *ibid*, pp. 207-8

### **Survivability and Delivery of Strategic Nuclear Forces for Assured Destruction**

Thus far, no attention has been paid to the survivability of the strategic nuclear forces, or to the delivery of nuclear warheads to their targets, with respect to an assured-destruction capability. Both issues are taken up in turn. The strategic nuclear forces of a sophisticated nuclear arsenal are divided into three components, which together constitute the strategic 'triad'. First, there are the land-based inter-continental ballistic missiles (ICBMs). Second, there are the sea-based submarine-launched ballistic missiles (SLBMs). Third, there are the manned bombers. Neither component is in any real sense vulnerable, although the ICBM component is generally considered to be more vulnerable than its counterparts. The SLBM force aboard nuclear-powered ballistic-missile-carrying submarines (SSBNs) is normally the least vulnerable component, by virtue of the ability of SSBNs to operate at almost undetectable levels in expansive oceans. The manned bomber force, if kept on adequate alert, will escape total destruction, especially if a portion of the force is kept on continuous airborne patrol. But ICBMs, whose fixed-site locations may be known to an adversary, are relatively more prone to enemy destruction. Even mobile ICBMs can be located and tracked through aerial and satellite reconnaissance. These vulnerabilities notwithstanding, ICBMs are only vulnerable to the extent that an enemy can successfully fashion a first-strike counterforce capability, about which more will be said later. Importantly, it is worth noting that "with nuclear weapons, if any part of a force is invulnerable, all of the force is invulnerable".<sup>91</sup> The triad has three legs but can stand on one.

Admittedly, the acquisition and maintenance of such sophisticated forces would require considerable budgetary investment, itself co-ordinated to the similar efforts of other

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<sup>91</sup> Kenneth Waltz, "Waltz Responds to Sagan," in Scott Sagan and Kenneth Waltz, *The Spread of Nuclear Weapons: A Debate Renewed*, W. W. Norton & Company, New York, 2003, p. 143; Bernard Brodie, "The Development of Nuclear Strategy," in Steven Miller, ed., *Strategy and Nuclear Deterrence*, Princeton University Press, Princeton, 1984, p. 9



nuclear-weapon states. Surely this would seem to contradict the argument presently being advanced, namely that second-strike forces render unnecessary the need to balance superior military power. The concept of the strategic triad, however, greatly exaggerates the efforts required of an assured-destruction capability. Unconventional and less sophisticated means of strategic nuclear delivery are almost as effective, and in some cases may be just as efficient, as the more conventional and sophisticated delivery means discussed above. An important study on the threat of nuclear terrorism against the U.S. expressly states that the assumption “that the delivery of a nuclear weapon against the United States is a challenge” is “dead wrong”.<sup>92</sup> Moreover, the Allison study argues, “the means of delivery into or against the United States are *essentially infinite*”.<sup>93</sup> It posits that nuclear weapons and fissile material are easily transportable. One hundred pounds of highly enriched uranium (HEU) has a blast equivalent of 10-20 kilotons (ie as powerful as the atomic bomb dropped on Hiroshima), and yet is no larger than the size of a grapefruit.<sup>94</sup> Alternatively, “[a] quantity of plutonium the size of an apple is enough to make a simple fission weapon”.<sup>95</sup> Also, nuclear weapons themselves exist in sizes small enough to be carried in a backpack, in a small truck, or in the boot of a car.<sup>96</sup> In addition, no health risks attend the human transportation of weapons quantities of fissile material. The radioactive alpha particles emitted by plutonium cannot penetrate human skin. Hence plutonium is easily carried in a person’s pocket free of harm.<sup>97</sup> HEU is barely radioactive and can be handled directly in a very safe manner.<sup>98</sup>

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<sup>92</sup> Quoted in Graham Allison, Owen Coté, Jr., Richard Falkenrath, Steven Miller, *Avoiding Nuclear Anarchy: Containing the Threat of Loose Russian Nuclear Weapons and Fissile Material*, The MIT Press, Cambridge, 1996, p. 12. Henceforth referred to as the Allison study. Allison et al. lament the “remarkably little literature on unconventional means of delivery”. Ibid, 1996, p. 69. Their study, however, focuses on the threat of nuclear terrorism, and not on the ease with which an assured-destruction capability can be mounted, which is the argument I am presenting here.

<sup>93</sup> Quoted in *ibid*, 1996, p. 13. My emphasis.

<sup>94</sup> *Ibid*, 1996, p. 1

<sup>95</sup> Quoted in *ibid*, 1996, p. 45

<sup>96</sup> *Ibid*, 1996, p. 46

<sup>97</sup> *Ibid*, 1996, p. 44

<sup>98</sup> *Ibid*, 1996, pp. 45, 67

Transportability aside, how are nuclear weapons and fissile material to be delivered to their destinations? The Allison study discusses the porous nature of American borders. It distinguishes between legal and illegal points of entry. Of the former, there are 301. Consider, for example, the case of shipping ports. A 2004 study by a national non-profit public interest organization on port security in the U.S. reveals that only 4-6% of annual inbound freight is inspected by the Coast Guard and the Customs Service.<sup>99</sup> That corresponds to 7.52-7.68 million uninspected containers every year, in which nuclear weapons or fissile material could easily be hidden.<sup>100</sup> It has even been suggested that nuclear weapons could be delivered in component form via the postal service.<sup>101</sup> Although customs inspectors patrol legal points of entry, “none ... are trained or equipped to detect nuclear materials”.<sup>102</sup> And while radiation detection equipment exists in the U.S., it does so only at a very limited number of sites.<sup>103</sup> Radiation detectors, whether active or passive, are nonetheless inadequate and inefficient, and almost useless in the event that nuclear weapons or fissile material are shielded so as to evade possible detection.<sup>104</sup> These efforts may after all be negligible, since any inspection and detection efforts are undertaken “only after” the inbound cargo has arrived at sea and air ports “in or near major U.S. cities”.<sup>105</sup> But by this time, it would obviously be too late to intercept what would in effect be a retaliatory blow; a nuclear weapon exploded on arrival at a U.S. port would be just as effective and just as destructive a countervalue strike as an attack with an ICBM on the same target. Concerning illegal points of entry, one need only note the U.S.

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<sup>99</sup> Public Citizen, “Ports Unsecured: America’s Vulnerable Shipping Borders,” released on October 15<sup>th</sup>, 2004, accessible online at: <http://www.citizen.org/homelandsec/index.cfm?relatedpages=1&catID=114&secID=2226>. Accessed June 2007. Similarly, Graham Allison claimed in January 2004 that only 2% of the estimated 7 million inbound shipping containers estimated for 2004 would be opened for inspection. See Graham Allison, “How to Stop Nuclear Terror,” *Foreign Affairs*, vol. 83, no. 1, 2004, online edition

<sup>100</sup> My calculation.

<sup>101</sup> Ibid, 1996, p. 69

<sup>102</sup> Allison et al., 1996, p. 65

<sup>103</sup> Ibid, 1996, p. 67

<sup>104</sup> Ibid, 1996, pp. 67-8

<sup>105</sup> Quoted in *ibid*, 1996, p. 65

government's inability to prevent both drug smuggling and illegal immigration.<sup>106</sup> The Allison study remarks that "[t]here is no reason why a nuclear weapon is less likely to make it into the United States than a bale of marijuana, a packet of heroin, or a farm worker from Latin America".<sup>107</sup> In sum, an assured destruction capability need not require sophisticated strategic delivery systems; a relatively unsophisticated and unconventional nuclear arsenal is not necessarily more vulnerable than the U.S. Strategic Triad, especially if an ample supply of fissile material is available.

Inasmuch as the strategic nuclear forces vital to an assured-destruction capability can be made invulnerable, what are the requirements for their supporting command, control, and communications (C<sup>3</sup>) architecture? C<sup>3</sup> systems are intrinsic to an assured-destruction capability, but are "inherently more vulnerable than the strategic forces themselves".<sup>108</sup> Specifically, C<sup>3</sup> systems are vulnerable not only to those attacks directed at the strategic nuclear forces, but also to additional attacks and collateral effects.<sup>109</sup> More on C<sup>3</sup> vulnerabilities will be said later, but it is important to stress here that among possible nuclear postures, an assured-destruction capability demands the sparest C<sup>3</sup> network. After all, the sole C<sup>3</sup> requirement for an assured-destruction capability is to ensure a secure communications link from the national command authorities to the actual strategic nuclear forces.<sup>110</sup> Such a link provides the means by which a political leadership would instruct the commanders of the deterrent forces to execute the retaliatory mission. While a two-way communications link between the leadership and the forces is preferable, only a one-way link from the leadership to the forces is imperative.<sup>111</sup> This requirement is easily accommodated at little expense simply by increasing the redundancy of communications links. And this is attained by laying down

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<sup>106</sup> Ibid, 1996, p. 66

<sup>107</sup> Quoted in ibid, 1996, p. 66

<sup>108</sup> Quoted in Desmond Ball, *Can Nuclear War Be Controlled?* Adelphi Paper, no. 169, International Institute for Strategic Studies, London, 1981, p. 37

<sup>109</sup> Ibid, 1981, p. 10

<sup>110</sup> Ibid, 1981, p. 6

<sup>111</sup> Ibid, 1981, p. 6

additional hardened underground dual- or multi-thread cables, by extending the range of radio and satellite transmission channels, or by developing alternative underground/airborne national command posts from which orders could also be disseminated to the forces. Having established a C<sup>3</sup> network of adequate redundancy to fulfil an assured-destruction capability, only maintenance efforts are needed hereafter. Overall, the requisite C<sup>3</sup> architecture to ensure assured destruction can be wrought upon an opponent is minimal, and need not be attuned to the efforts of actual or potential rivals.

### **‘The Great Equalizer’**

Based upon the evidence adduced above, the weapons requirements for assured destruction are considerably lower than those former U.S. Secretary of Defense Robert McNamara stated in 1967. For McNamara, assured destruction of an adversary would result if between one-fifth and one-quarter of its population, and between one-half and two-thirds of its industry, were destroyed.<sup>112</sup> This corresponded to a megaton equivalent of 200-400.<sup>113</sup> Interestingly, McNamara scaled down his assured destruction criteria in 1992, believing that 60 strategic nuclear warheads would be largely sufficient for the U.S.<sup>114</sup> Perhaps spare warheads should be reserved for nuclear testing purposes. Nuclear testing, it could be argued, demonstrates unambiguously a country’s potential for assured destruction, and also assists the improvement of strategic weapons systems. In testing a nuclear device, a country is communicating (whether successfully or not) the certainty of its nuclear deterrent. An assured-destruction capability, however, exploits and benefits greatly from *uncertainty*.<sup>115</sup> Who would be

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<sup>112</sup> Desmond Ball, “The Development of the SIOP, 1960-1983,” in Desmond Ball and Jeffrey Richelson, eds., *Strategic Nuclear Targeting*, Cornell University Press, Ithaca, 1986, p. 69

<sup>113</sup> Dieter Lutz, “A Counterforce/Countervalue Scenario – or How Much Destructive Capability is Enough?” *Journal of Peace Research*, vol. 20, no. 1, 1983, p. 24

<sup>114</sup> Waltz, 2003, p. 142

<sup>115</sup> Kenneth Waltz, *The Spread of Nuclear Weapons: More May Be Better*, Adelphi Paper, no. 171, International Institute for Strategic Studies, London, 1981, p. 15. Witness Israel’s stated policy of strategic ambiguity, which has as its objective ‘deterrence through uncertainty’. Shai Feldman, *Israeli Nuclear Deterrence: A Strategy for the 1980s*, Columbia University Press, New York, 1982, p. 10

prepared to undertake offensive military operations against an adversary, when the precise content and location(s) of the latter's nuclear arsenal are unknown? Egyptian President Anwar Sadat and Syrian President Hafez Al-Assad stopped short of extending the 1973 Yom Kippur War beyond the Disputed Territories, in part because they were unsure as to whether Israel did or did not possess a 'bomb-in-the-basement' capability.<sup>116</sup> Quite simply, they were not prepared to allay their doubts when doing so could well have resulted in the levelling of Cairo and Damascus. Israel has never conducted any atmospheric testing of its purported nuclear arsenal; few, however, take this to mean Israel's deterrent is impotent. Israel has deterred, as well as any other nuclear-weapon state, those attacks that threatened its manifestly vital interests.<sup>117</sup> Nuclear testing, thus viewed, adds nothing to an assured-destruction capability. In summary, assured destruction need not depend upon very many nuclear weapons. It is chiefly for this reason that an assured-destruction capability is a relatively economical means of deterring superior military power.<sup>118</sup>

With only a relatively small number of nuclear weapons, a country can deter all major nuclear and conventional military attacks that threaten its survival. Hence the concept of minimum deterrence, whereby one retains only enough nuclear weapons so as to inflict upon an aggressor unacceptable damage in a second (retaliatory) strike. It is because the requirements of deterrence are few and finite that nuclear weapons are considered 'the great equalizer'. Strategic parity thus results among states armed with retaliatory nuclear forces; as Robert Jervis reminds us, "nuclear superiority doesn't matter".<sup>119</sup> But is the notion of conventional military superiority among nuclear-weapon states similarly flawed? Answering

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<sup>116</sup> Waltz discusses the issue of the Disputed Territories in the 2003 lecture, cited earlier. A bomb-in-the-basement posture refers to an undeclared deterrent capability. Feldman, 1982, p. 7

<sup>117</sup> On the effectiveness of Israel's "opaque" nuclear status, see Jeremy Goldberg, Parag Khanna, and Kenneth Waltz, "Is Kenneth Waltz Still M.A.D. About Nukes?" *Georgetown Journal of International Affairs*, Winter/Spring 2000, p. 53.

<sup>118</sup> Waltz, 1981, p. 8

<sup>119</sup> Robert Jervis, "Why Nuclear Superiority Doesn't Matter," *Political Science Quarterly*, vol. 94, no. 4, 1979-1980

negatively requires showing how superior conventional military power might be brought to bear on a nuclear-armed state in ways that do not prompt an all-out nuclear exchange.

Consider for instance North Korea, which in many ways represents an ideal test case; it has recently acquired a minimum deterrent nuclear arsenal, and its conventional forces are very weak in relative terms. In light of the diplomatic tensions that pervade U.S.-North Korean relations, especially over the issue of Pyongyang's accession to the nuclear club in October 2006, one wonders how Washington might employ its superior conventional military power against North Korea. Upon the detection of incoming U.S fighter and bomber aircraft, however, how can the North Korean leadership be completely reassured that the aircraft are not "the prelude to an all-out surprise attack"?<sup>120</sup> Such guaranty is simply impossible in such matters. Therefore, conventional military operations against a nuclear-armed state can rather easily induce an unintended all-out nuclear exchange, especially if the aggressed state fears the loss of its retaliatory capability.<sup>121</sup> Furthermore, the application of superior conventional firepower, even if only of a limited nature, against North Korea would in all probability intentionally or inadvertently destroy vital C<sup>3</sup> systems through which Pyongyang would order a retaliatory strike were its vital interests compromised.<sup>122</sup> With these systems inoperable, North Korea would in effect be disarmed. Thus, it is most likely that the North Korean leadership, fearing the loss of its second-strike capability, would order a retaliatory strike *before* its communications links to the nuclear forces were completely severed. And this would consequently work to reinforce its deterrent threat against both American nuclear *and* conventional attack, limited or all-out, especially as North Korea's nuclear arsenal, although limited, holds several major American cities hostage.<sup>123</sup>

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<sup>120</sup> I have appropriated this scenario from Kissinger, 1957, p. 158

<sup>121</sup> Barry Posen, "Inadvertent Nuclear War? Escalation and NATO's Northern Flank," in Steven Miller, ed., *Strategy and Nuclear Deterrence*, Princeton University Press, Princeton, 1984, p. 88

<sup>122</sup> See discussion on C<sup>3</sup> vulnerabilities, below.

<sup>123</sup> See discussion on limited war, below.

The conclusion now seems apparent. Namely, minimum deterrent arsenals void the need to balance superior nuclear *and* conventional military power, seeing as such power can in no meaningful way be used to increase one's relative power in relation to a nuclear-weapon state. If nuclear weapons equalize military power differentials, the third definition of the structure of the international system in neorealist theory – the distribution of capabilities – is altered. More precisely, insofar as the military dimension of international politics is concerned, the systemic incentive to check and balance superior military power disappears altogether. Thus far, the analysis has been framed wholly within the context of minimum deterrence. Minimum deterrence, however, constitutes but one school of thought in the nuclear deterrence debate. The remainder of the chapter therefore considers the other contending schools of thought in the debate, and asks whether any of them vitiates the conclusion reached in this section.

## **II. MINIMUM DETERRENCE AND ITS CRITICS**

This section addresses the various other perspectives in the nuclear deterrence debate, focusing in particular on their respective critiques of minimum deterrence.

### **The Delicacy of Deterrence**

Some have argued that minimum deterrence underestimates the requirements of proper deterrence. Adherents of this view, first articulated by Albert Wohlstetter in “The Delicate Balance of Terror”, reject the “automatic” and inevitable stability of nuclear deterrence, and argue that a host of challenges must constantly be addressed so as to ensure the deterrent force remains invulnerable.<sup>124</sup> In particular, they argue, minimum deterrent arsenals are prone to surprise attacks, which could render impotent their retaliatory blows. In other words, the crux

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<sup>124</sup> Quoted in Wohlstetter, 1959, p. 222

of deterrence is not so much the ability to retaliate per se, but rather the ability to inflict upon an aggressor *unacceptable damage* even after suffering a surprise counterforce attack. Were only a few weapons to survive such a surprise attack, and were the aggressor's air and ballistic missile defence systems able to intercept most of these surviving warheads before they fulfilled their retaliatory mission, a minimum deterrent arsenal may fail to deter.<sup>125</sup> But would an aggressor launch a surprise counterforce attack in the absence of any certainty of destroying a sufficiently large portion of the adversary's arsenal, and in the absence of any guarantee that its air and missile defences would effect a sufficient attrition of the retaliatory attack? U.S. Tactical Air Command abstained from such an option even as it was confident of knocking out 90% of the Soviet intermediate-range ballistic missile (IRBM) force stationed in Cuba in October 1962.<sup>126</sup> No country has ever attempted a surprise counterforce attack in the nuclear age; one readily understands the hesitancy.

The delicacy of deterrence, the argument continues, may invite nuclear blackmail. Even among nuclear-armed states, if nuclear superiority does in fact matter, the stronger can pressure the weaker to concede on important issues simply by touting the prospect of greater loss, or perhaps even defeat, in a nuclear exchange. John Mearsheimer, in an influential article published in 1990, believes that by "ganging up", nuclear-armed aggressors may "overwhelm" another nuclear-weapon state's deterrent.<sup>127</sup> This would permit aggressors to "bully" even a country armed with a second-strike capability.<sup>128</sup> Upon closer examination, however, such a prospect seems technically unattainable. Surprisingly, Mearsheimer frames this argument in the post-Cold War European context. But of all regions, the prospect of nuclear blackmail would seem least likely to work in Europe, for the simple reason that trans-border travel within the European Union has been increasingly facilitated by the political

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<sup>125</sup> I have merely adapted Wohlstetter's thesis to the present situation. Ibid, 1959, pp. 211-34

<sup>126</sup> Waltz, 1981, p. 16

<sup>127</sup> Quoted in Mearsheimer, 1990, p. 112

<sup>128</sup> Quoted in ibid, 1990, p. 112



integration efforts of the last half-century. How then would a nuclear-capable Germany bully France, when the latter's *force de frappe*, even were it to lose its IRBMs, SLBMs, and manned bombers, could fairly easily deliver several nuclear weapons to all major German cities by open road? Alternatively, a few ox carts laden with nuclear weapons and pulled through the Black Forest could just as easily accomplish the retaliatory mission.<sup>129</sup> Earlier in the cited article, Mearsheimer unequivocally asserts that “[t]here is not a single case of a leader brandishing nuclear weapons during a crisis, or behaving as if nuclear war might be a viable option for solving important political problems”, a fact he seems to overlook later in the same article.<sup>130</sup>

### **First-Strike Capability**

A successful first-strike capability is achieved in either of two ways: (1) through counterforce targeting; and/or (2) through damage limitation strategies, amongst which the deployment of an impregnable ballistic missile defence (BMD) system is the ultimate example. Supporters of the need for a first-strike capability distrust the deterrent threat of assured destruction altogether. Colin Gray, an exemplar of this school of thought, summarized the case for an American first-strike doctrine during the Cold War as follows: “First and foremost, the Soviet leadership fears *defeat*, not the suffering of damage – and *defeat* ... has to entail the forcible demise of the Soviet state.”<sup>131</sup> Thus, the prospect of defeat in a nuclear war would be the substantive deterrent, and not merely the promise of retaliation. While politically sound, such a “theory of victory” is next to impossible to implement technically.<sup>132</sup>

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<sup>129</sup> On ox cart delivery in general, see Waltz, 2003, p. 147.

<sup>130</sup> Quoted in *ibid*, 1990, p. 101; Similarly, Richard Betts argued in 1987 that no Soviet threats of nuclear blackmail were “effective” against the U.S. Richard Betts, *Nuclear Blackmail and Nuclear Balance*, The Brookings Institution, Washington, 1987, pp. 217-8.

<sup>131</sup> Quoted in Gray, “Nuclear Strategy: The Case For a Theory of Victory,” in Steven Miller, ed., *Strategy and Nuclear Deterrence*, Princeton University Press, Princeton, 1984, p. 30. Emphasis in original.

<sup>132</sup> Quoted in *ibid*, 1984, p. 49

A first-strike counterforce capability obtains when one can disarm an adversary's entire nuclear arsenal. This involves locating and tracking an adversary's fixed-site and mobile ICBM launchers, SSBNs, and manned bombers. But even this preliminary requirement is achieved with difficulty; SSBNs at sea can rather easily avoid being exposed by anti-submarine warfare (ASW) forces, and bombers flown at very low altitudes can evade radar detection.<sup>133</sup> Notwithstanding this setback, counterforce targeting relies on very high accuracy and "near-perfect attack sequencing".<sup>134</sup> The precision of a ballistic missile is measured by a circular error probable (CEP), which is defined as the radius of the circle around a target, within which will fall half the launched warheads. The CEP takes into account those errors induced by atmospheric conditions, gravitational pressures, the rotation of the earth, magnetic effects, and a host of other technical errors.<sup>135</sup> To be sure, a CEP also denotes a circle of equal probability: there is a 50% chance that a given warhead will fall within the circle, and a 50% chance that it will not.<sup>136</sup> Thus, by increasing the warhead's yield so as to effect a twofold increase in its radius of destruction ( $r$ ), one is assured the target will be hit. If warhead yields factor in the equation  $r=2\text{CEP}$ , the precision problem of counterforce targeting is largely mitigated.<sup>137</sup> This assumes, of course, that nuclear warheads are delivered to their targets without compromising the arrival of the remainder of the volley. This 'fratricide effect', however, could prove a major stumbling block for counterforce targeting.<sup>138</sup> In brief, there are simply too many uncertainties involved in a counterforce strike for it to be a viable strategy. Even a rudimentary minimum deterrent arsenal is scarcely susceptible to a counterforce attack; the prospect of even a few nuclear weapons, stored in a

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<sup>133</sup> Not to mention the B-2 and F-117 stealth bombers, both of which are undetectable by radar.

<sup>134</sup> Quoted in Feldman, 1982, p. 41

<sup>135</sup> Ibid, 1982, p. 41-2; Ball, 1984, p. 224

<sup>136</sup> James Constant, *Fundamentals of Strategic Weapons: Offense and Defense Systems*, Martinus Nijhoff Publishers, The Hague, 1981, p. 140. Henceforth Constant, 1981a.

<sup>137</sup> Ibid, 1981a, p. 141

<sup>138</sup> Feldman, 1982, p. 42

rural barn and unbeknownst to an aggressor, surviving a full-scale counterforce strike is sufficient to induce pause for thought.<sup>139</sup>

To many, the shield and sword analogy effectively captures the logic of ‘strategic defence’: an impregnable BMD system provides a state with a shield, behind which it can employ, or at least threaten to employ, the sword offensively without having to fear the retaliatory strikes the victim would doubtless launch in turn. The analogy is a good one; its interpretation is not. ‘Strategic defence’ is a misnomer. Far from providing an effective defence against *all* possible means of strategic delivery, BMD is merely a defence against *one* means of delivering strategic weapons - ballistic missiles. But as we saw earlier, the possible means of strategic delivery are almost limitless. If anything, BMDs indirectly promote the further pursuit of such means.<sup>140</sup> Even in the case of conventional means of strategic delivery, BMDs are effectively flouted by firing ICBMs and SLBMs on fractional-orbit (depressed) or lofted trajectories so as to greatly reduce the time with which the intended victim has to detect and intercept the incoming warheads.<sup>141</sup> Alternatively, an all-decoy attack against the BMD system could exhaust the latter’s store of interceptor missiles; upon the depletion of this store of anti-ballistic missiles (ABMs), the subsequent all-warhead attack would proceed with relative impunity.<sup>142</sup>

The use of penetration aids on re-entry vehicles (RVs) further degrades a BMD system’s effectiveness.<sup>143</sup> For instance, RVs can eject chaff, spot or volume, to confuse enemy radar or to conceal their precise trajectories. Other penetration aids include: electronic countermeasures (ECM), which actively jam defensive radar; booster fragments accompanying the RV on its ballistic trajectory, which serve to confuse enemy radar until

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<sup>139</sup> See Quester, 1977, p. 206

<sup>140</sup> Kenneth Waltz, “Nuclear Myths and Political Realities,” *American Political Science Review*, vol. 84, no. 3, 1990, p. 742

<sup>141</sup> *Ibid*, 1990, p. 742; Constant, 1981a, pp. 117-20

<sup>142</sup> James Constant, *Fundamentals of Strategic Weapons: Offense and Defense Systems*, Martinus Nijhoff Publishers, The Hague, 1981, p. 39. Henceforth Constant, 1981b.

<sup>143</sup> The subsequent discussion draws on Constant, 1981a, pp. 120-33.

they re-enter the earth's atmosphere, upon which the heavier RV is filtered from the lighter fragments; decoys (eg balloons), which effectively confuse defensive radar, especially during the mid-course phase of the RV's trajectory, after which atmospheric filtering permits the enemy to discriminate between the RV and the decoys; the reduction of the RV's radar cross section "through such means as absorptive coatings, paints, and contouring"<sup>144</sup>; multiple independently-targetable re-entry vehicles (MIRVs), of which some models can launch more than 20 RVs per missile; manoeuvrable re-entry vehicles (MARVs) capable of effecting in-flight changes in the RVs' trajectories by means of external tabs; radar blackout intended to paralyse enemy radar, which would ensue from either deliberate high-altitude detonations or from the nuclear explosions of enemy interceptor missiles designed to destroy incoming RVs; and lastly, a BMD system is relatively prone to enemy destruction or impairment, seeing as many of its components (eg radar installations) are naturally 'soft' targets.

Moreover, the ability of BMD to fulfil even the task assigned to it – the interception of enemy ballistic missiles (especially by 'hit-to-kill' technology) – has been, and continues to be, highly suspect.<sup>145</sup> Judging from this discussion of BMD, it is safe to say that no state can conceivably immunize itself completely from retaliatory nuclear strikes. To conclude, the shield and sword analogy is worth retaining; the shield-wielding swordsperson will forever remain prone to attacks from the rear and side, and to thrusts directed at her/his exposed legs. U.S. President Ronald Reagan nicknamed his Strategic Defense Initiative of March 1983 "Star Wars"; such a designation aptly reminds us that it and every subsequent effort to fashion a 'strategic defence' system is better left to science fiction.

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<sup>144</sup> Quoted in Constant, 1981a, p. 127

<sup>145</sup> No full-proof system is in existence.

## Limited War

For some nuclear strategists, the Korean War (1950-1953) laid bare the inability of nuclear weapons to deter limited local aggression.<sup>146</sup> The Eisenhower administration attempted to remedy the problem by adopting the doctrine of ‘massive retaliation’, whereby local aggression, even of a limited nature, against U.S. interests or allies would occasion an all-out retaliatory nuclear strike against the Soviet Union. No sooner had the administration announced its doctrine in January 1954 than it was criticised for the incredibility of its threat. Would Washington really have initiated ‘massive retaliation’ against the Sino-Soviet bloc for the latter’s instigation of aggression on the Korean peninsula, even though vital American interests were not at stake? The question answers itself. William Kaufmann, in his influential critique of the administration’s doctrine, anticipated the need for options short of all-out retaliation: “We must, in a word, try to fit the punishment to the crime.”<sup>147</sup> Much theorising thus turned to the issue of limited war, by which means it was believed a state’s military power could serve its foreign policy objectives, even in the thermonuclear age.<sup>148</sup> Like the periods 1648-1789 and 1815-1914, during which limited war, as an instrument of state policy, was the *modus operandi* of European great-power politics, limited-war theorists now faced the task of adjusting the practice of limited war to the nuclear era.<sup>149</sup>

Limited wars are of two types: local and central.<sup>150</sup> The former are fought on the territories of third parties; the latter are waged on one or both parties’ homelands. If a war is to remain limited, it is often argued, its participants must agree upon the observance of limitations, even if only tacitly. Moreover, the “ground rules” for limited war fighting must be established before the outbreak of hostilities, since the means to negotiate limits during the

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<sup>146</sup> Morton Halperin, “Limited War: An Essay on the Development of the Theory and An Annotated Bibliography,” *Occasional Papers in International Affairs*, Center for International Affairs, Harvard University, Cambridge, 1962, pp. 1-2

<sup>147</sup> Quoted in William Kaufmann, “The Requirements of Deterrence,” *Memorandum Number Seven*, Center of International Studies, Princeton University, November 15, 1954, p. 15

<sup>148</sup> Kissinger, 1957, p. 141

<sup>149</sup> *Ibid*, 1957, p. 141-2

<sup>150</sup> Halperin, 1962, p. 11

conflict are likely to be tenuous.<sup>151</sup> But it is probable that a war could be kept limited even in the absence of any such accord, seeing as the losing side is unlikely to escalate the conflict into an all-out nuclear exchange just to avoid defeat. After all, defeat in a limited war by no means implies the surrendering of one's sovereignty. Hence the basis of limited war: because a state's sovereignty is not at issue in a limited war, one presumes it would invariably choose defeat in such a war over annihilation, seeing as mutual assured destruction would surely obtain were the losing side to disregard all limitations.<sup>152</sup> The acceptance of limits, explicit or otherwise, is nonetheless essential for waging a limited war. The two principal categories of limitations are those concerned with targets, and those related to the types of weapons used. Insofar as targets are concerned, limited war presupposes at least one limitation – 'city avoidance' – to which adherence is essential if the war is to be kept from exploding into an all-out confrontation.<sup>153</sup> As concerns weapons, it is unlikely that cities would escape damage in a limited exchange fought with strategic nuclear weapons, no matter how committed the contending parties may be to observing city avoidance.<sup>154</sup> Thus, a limited war could only feasibly be fought with conventional armoury and tactical nuclear weapons.

Proponents of limited-war doctrines usually fall into one of two groups: (1) those who believe that limited wars should be fought with conventional weapons only; and (2) those who believe that limited wars should be fought with tactical nuclear weapons primarily. Advocates of limited conventional war argue that the introduction of nuclear weapons into a limited conflict would create uncontrollable escalatory pressures and would make the continued limitation of the conflict exceptionally difficult.<sup>155</sup> Supporters of limited nuclear war believe a limited conventional conflict would require the amassing of large bodies of troops and

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<sup>151</sup> Kissinger, 1957, p. 202

<sup>152</sup> Ibid, 1957, p. 186; Morton Halperin, *Limited War in the Nuclear Age*, John Wiley & Sons, Inc., New York, 1963, pp. 33, 102

<sup>153</sup> Bernard Brodie, *Strategy in the Missile Age*, Princeton University Press, Princeton, 1959 [1965], p. 310

<sup>154</sup> One exception may be the air bursting of strategic warheads at altitudes high enough to avoid fall-out effects. But high-altitude detonations have pernicious consequences for C<sup>3</sup> systems, the maintenance of which are critical in a limited war. See discussion of C<sup>3</sup> vulnerabilities below.

<sup>155</sup> Halperin, 1963, p. 70

extensive supply lines, providing easy targets for tactical nuclear strikes. Henry Kissinger, an early and leading proponent of limited nuclear war, argued also that small, mobile self-contained land units equipped with tactical nuclear weapons could rather easily deny enemy control of disputed territory.<sup>156</sup>

The conduct of a limited war would likely proceed in phases, with intermittent intervals for negotiation between the adversaries, since the prospect and promise of war-termination are intrinsic to the concept of limited war.<sup>157</sup> And yet, those relatively ‘soft’ communications systems vital for intra-war negotiation are unlikely to survive very long in a limited conventional war, and less so in a limited nuclear war. Collateral blast overpressures of only 5 pounds per square inch (psi) would suffice to render such systems inoperable.<sup>158</sup> Closely connected to this issue is that of C<sup>3</sup> vulnerabilities more broadly, and their implications for the conduct of a limited nuclear war.<sup>159</sup> C<sup>3</sup> systems are prone to damage and destruction from the effects of nuclear detonations, which are briefly summarised below.<sup>160</sup> The blast effects of nuclear weapons can destroy even the world’s sturdiest constructions; indeed, even the North American Air Defence (NORAD) buried under some 400 metres of granite in Cheyenne Mountain can be destroyed by blast overpressures exceeding 5000 psi, which is within reach of some high-yield warheads.<sup>161</sup> Radiation effects include atmospheric ionisation, which can impair radio and radar systems; transient radiation effects on electronics (TREE), which can degrade important electronic systems; and electromagnetic pulse (EMP), which similarly affect electrical and electronic systems. Sabotage, jamming, and deficient communications security can also be exploited to further destroy C<sup>3</sup> systems. As Desmond Ball writes, moreover: “It is axiomatic that the chain of command is only as strong as its

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<sup>156</sup> Kissinger, 1957, pp. 178-182

<sup>157</sup> Ibid, 1957, pp. 225-6; Halperin, 1963, 101

<sup>158</sup> Ball, 1984, p. 229

<sup>159</sup> The remainder of this section focuses on limited nuclear war, since the prospects for keeping a conventional conflict from exploding into all-out war were discussed in Section I.

<sup>160</sup> The following discussion draws on Ball, 1981, pp. 9-14

<sup>161</sup> Ibid, 1981, p. 10

weakest link.”<sup>162</sup> Hence, the progressive degrading of a state’s C<sup>3</sup> systems throughout a limited nuclear war would deprive the political leadership from exercising ‘escalation control’, whereby an adversary can escalate its war effort without inducing all-out war. And without the means to properly execute discriminatory attacks, a limited nuclear war would in all likelihood become total.

Additional dilemmas accompany the fighting of limited nuclear wars. Namely, the component of the strategic forces upon which most reliance is likely to be placed in a limited nuclear war, given its greater ability to survive a “counterforce war of attrition”<sup>163</sup>, is the submarine force. And yet, this component is the least suited for limited war fighting. Unless a submarine launches all its SLBMs in a single volley, it risks detection (and subsequent destruction by enemy ASW forces) via the ‘backtracking’ of SLBM trajectories. But because target limitations counsel against such massive attacks (a submarine’s SLBM stock is often greater than 100), the submarine force will in effect be useless.<sup>164</sup> As regards tactical nuclear warfare, the blinding effects of nuclear explosions, especially at night, would generate “heavy casualties” even among those situated outside the weapons’ radii of destruction.<sup>165</sup> All told, a limited nuclear war cannot realistically endure beyond “either a few days or a few tens of detonations”.<sup>166</sup> Desmond Ball, in a trenchant critique of limited nuclear war, asserts:

Given the impossibility of developing capabilities for controlling a nuclear exchange through to favourable termination, or of removing the residual uncertainties relating to controlling the large-scale use of nuclear weapons, *it is likely that decision-makers would be deterred from initiating nuclear strikes no matter how limited or selective the options available to them.*<sup>167</sup>

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<sup>162</sup> Quoted in Ball, 1981, p. 9

<sup>163</sup> Quoted in Jervis, 1979-1980, p. 623

<sup>164</sup> Ball, 1981, pp. 23-6

<sup>165</sup> Brodie, 1959, p. 332

<sup>166</sup> Quoted in Ball, 1984, p. 242

<sup>167</sup> Quoted in Ball, 1981, p. 37. Emphasis in original.



Therefore, a doctrine of limited war, conventional or nuclear, is essentially self-deterred by the prospect of any limited exchange exploding into an all-out war, from which of course there can be no victors.

### **III. CONCLUSION**

What can we gather from the analysis in this chapter? Section I demonstrated that minimum deterrent arsenals void the need to balance superior military power. Section II evaluated the various critiques of minimum deterrence, and asked whether any of these contending approaches vitiated the conclusion of Section I. Each of the cases against minimum deterrence, however, was flawed for different reasons. Thus, far from overturning the conclusion of Section I, Section II merely reinforces it.

Among nuclear-weapon states, any attempt to increase one's relative power at the expense of another's by means of the application of superior military power would, inadvertently or not, lead to mutual assured destruction. It is for this reason that second-strike nuclear forces annul the military balancing imperative. The following chapter explores the implications of this conclusion for balance-of-power theory.

### CHAPTER 3: BALANCING AMONG NUCLEAR-WEAPON STATES

The conclusions of the preceding chapter are open to misinterpretation. Specifically, they could lend support to the belief that nuclear weapons have rendered obsolete balance-of-power theory in the nuclear age. With second-strike nuclear forces, one could argue, a country's survival is guaranteed.<sup>168</sup> And since balancing is a function of the need and desire to survive, balance-of-power theory loses its explanatory power in the nuclear age, or at least its ability to explain the outcomes of nuclear-armed states' behaviour. It is the purpose of this chapter to prove the falsity of this argument. The following analysis explores why balancing behaviour does indeed persist among nuclear-weapon states, and asks what form this behaviour takes. In brief, the chapter concludes that balancing dynamics are in full view in the post-Cold War era, and are readily explained by balance-of-power theory presently constituted.

Only nine nuclear-weapon states populate the international system today. One may therefore argue that nuclear-armed states merely represent the exception to the rule and not the rule itself, insofar as international politics is concerned. In other words, international politics is mainly a non-nuclearized business. And, as a result, the present study can only be of peripheral importance to the study of international relations. This line of reasoning fails to appreciate the logic of balance-of-power theory, which is concerned principally with the great powers. Of the nine nuclear-weapon states extant today, five are great powers. Among these five, the number of possible dyads is calculated by means of the following equation:  $[n(n-1)]/2$ .<sup>169</sup> But the ten dyads that obtain among the great powers, it is safe to say, are of greater import to balance-of-power theory than are the rest combined. Underscoring this reasoning is

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<sup>168</sup> I argue below that this is not the case because a state's survival is contingent not only upon military invulnerability (which is possible with nuclear arsenals), but also upon economic invulnerability (which is not possible).

<sup>169</sup> Waltz, 1979, p. 135

the structure of the international system. In neorealism, the structure of the international system constrains states from taking certain actions and disposes them toward taking others. Such reified language, while convenient, conceals an important question: who or what is doing the constraining and disposing? The answer lies simply in the international system's distribution of capabilities: the strong do what they can, and the weak suffer what they must.<sup>170</sup> This dynamic is best illustrated in unipolarity: in a world of one, the dominant power is checked and balanced by no one. As a consequence, it is largely free to act as it wishes.<sup>171</sup> Thus, a state's influence on the international scene is in direct proportion to its relative power.<sup>172</sup> Hence why international politics is mainly a game played by the great powers. Because every contemporary great power possesses a nuclear arsenal, the present study is of critical relevance to the study of international politics.

## I. THE SOFT BALANCING DEBATE AND ITS FLAW

The literature dealing with the absence of military balancing among nuclear-weapon states has generated the novel concept of 'soft balancing' to refer to those non-military means of attempting to balance American power since the end of the Cold War. Soft balancing subsumes a host of non-military balancing measures; among the more important include: balancing through international institutions (in particular the United Nations Security Council) and the assembling of diplomatic coalitions more broadly; economic competition; regional economic and political integration; and the denial of military basing rights.<sup>173</sup> The

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<sup>170</sup> This is a paraphrase of Thucydides.

<sup>171</sup> Waltz, 2004, p. 4

<sup>172</sup> This reasoning is elaborated in Waltz, 1979, p. 72

<sup>173</sup> For the major statements on soft balancing, see Robert Pape, "Soft Balancing against the United States," *International Security*, vol. 30, no. 1, 2005; T. V. Paul, "Soft Balancing in the Age of U.S. Primacy," *International Security*, vol. 30, no. 1, 2005; Stephen G. Brooks & William Wohlforth, "Hard Times for Soft Balancing," *International Security*, vol. 30, no. 1, 2005; Kier A. Lieber & Gerard Alexander, "Waiting for Balancing: Why the World Is Not Pushing Back," *International Security*, vol. 30, no. 1, 2005; Franz Oswald, "Soft Balancing Between Friends: Transforming Transatlantic Relations," *Debatte*, vol. 14, no. 2, 2006; Stephen Walt, *Taming American Power: The Global Response to U.S. Primacy*, W. W. Norton & Company, New York,

terms ‘balking’, ‘binding’, ‘opaque balancing’, ‘‘semi’-hard balancing’, and ‘leash slipping’ have also been offered, but considerable overlap exists among them.<sup>174</sup> I thus refrain from using these terms, and henceforth refer solely to ‘soft balancing’.

It is important to note that soft balancing is not alien to balance-of-power theory. Because balancing has throughout the ages been most prominent in the military sphere, soft balancing is sometimes, incorrectly, believed to lie beyond the scope of balance-of-power theory.<sup>175</sup> On the whole, however, soft balancing theorists have framed their arguments within Waltzian neorealism. To be sure, the soft balancing literature was spawned by the attempt to reconcile balance-of-power theory with the dilemma noted in chapter one: that no military balance of power has yet formed to check America’s overweening military capability.

Soft-balancing theorists have, it is argued here, betrayed a common mistake. Namely, soft balancing has collectively been treated as a means of balancing American *military* power. And yet military balancing, as chapter 2 demonstrated, is meaningless among nuclear-weapon states, seeing as no such state can bring its military power to bear upon another’s vital interests. Additionally, as the preceding chapter also illustrated, second-strike nuclear forces deter even those limited military missions that fall far short of threatening a state’s vital interests. Why then are nuclear-armed secondary states believed to be soft balancing America’s impotent military superiority? Soft-balancing theorists are right in saying that secondary states are soft balancing the United States, but are wrong to suggest that it is American military power those states are fearful of. It would appear, then, that soft balancing is in need of a reformulation. Specifically, soft balancing ought to be conceived not as a means of constraining American military power, but as a means of checking American

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2005, especially ch. 3; Christopher Layne, *The Peace of Illusions: American Grand Strategy from 1940 to the Present*, Cornell University Press, Ithaca, 2006, especially ch. 7. Henceforth Layne, 2006(i).

<sup>174</sup> I thus refrain from using these terms, and instead refer solely to ‘soft balancing’ broadly conceived. This shall avoid unnecessary confusion. The terms are defined and elaborated in Walt, 2005, ch. 3; Layne, 2006(i), ch. 7; Layne, 2006, pp. 29-36.

<sup>175</sup> Paul, for one, seems to think so. Paul, 2005, p. 71

economic and technological preponderance. This latter preponderance, after all, is not a condition in which second-tier major powers want to voluntarily acquiesce. Waltz captures the balancing logic in non-military realms: “Balance-of-power theory leads one to expect that states, if they are free to do so, will flock to the weaker side. The stronger, not the weaker side, threatens them, *if only by pressing its preferred policies on other states.*”<sup>176</sup> The various dimensions of non-military power – especially economic and technological – can be employed in ways that simultaneously advance a state’s national aims without inviting nuclear retaliation. Hence the need for states to concern themselves with the balance of economic and technological power.

Avowedly, such balancing behaviour begs the question: if nuclear-armed states are capable of deterring any significant military attack upon its vital and lesser interests, why does economic and technological competition among them nonetheless persist? Is not balancing after all a function of the survival imperative? Worded differently, do not states balance superior power so as to reduce their own vulnerability to attacks that could well threaten their very survival? The answer would seem to be clear: if states continue to balance non-military power, *despite* their being possessed of retaliatory nuclear forces, then states must be aware that their survival is not contingent solely upon remaining militarily invulnerable (for which nuclear arsenals are a sure guarantee). Consider, for instance, Aaron Friedberg’s 1991 description of economic balancing behaviour in international politics, which can stand for a host of other similar statements:

In the past, nations have often used economic instruments as a way of attempting to influence the political behavior of their rivals... Such practices could become more common in the years ahead, as interdependence intensifies, political relationships shift, and *the utility of military power in most situations remains relatively low*. National security policy may, therefore, come to encompass measures designed to reduce a country's vulnerability to economic influence attempts (and, perhaps, to enhance its capacity for exploiting the vulnerabilities of others)...<sup>177</sup>

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<sup>176</sup> Quoted in Waltz, 1993, p. 72. My emphasis. Stephen Walt makes a similar point in “Taming American Power,” *Foreign Affairs*, vol. 84, no. 5, 2005, online edition.

<sup>177</sup> Quoted in Aaron Friedberg, “The Changing Relationship between Economics and National Security,” *Political Science Quarterly*, vol. 106, no. 2, 1991, pp. 271-72. My emphasis.

Friedberg's analysis of "economic statecraft" falls short in that it nowhere questions the purpose of economic competition in the nuclear age.<sup>178</sup> To say that states traditionally compete for power and plenty is, after all, perfectly consonant with the notion of military balancing. Namely, states compete economically for the simple reason that economic power is merely latent military power.<sup>179</sup> But as should be clear by now, those nuclear-weapon states that have grasped the conclusions of chapter 2 have little or no incentive to balance superior military power. For this reason, the argument that economic competition is motivated by the prospect of gains in latent military power rings hollow in the nuclear age. Surely, then, economic competition must be geared toward other objectives. It is toward these other objectives that the analysis now turns.

## II. ECONOMIC VULNERABILITY AND STATE SURVIVAL: EVIDENCE OF A CAUSAL CONNECTION

That militarily invulnerable states (ie nuclear-weapon states) balance non-military power suggests quite forcefully that state survival can be undermined by non-military means. At least, this much was established in the preceding section. The present section therefore explores all those non-military means by which a state's prospects of survival can be jeopardised. Toward this end, students of transnational security issues have shed considerable light. The numerous non-military threats to state survival extant in the post-Cold War era can be categorized as follows: (1) economic; (2) technological; (3) disease and international pandemics; and (4) global environmental degradation and climate change.<sup>180</sup> These four groupings are addressed in turn.

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<sup>178</sup> Quoted in *ibid*, 1991, p. 271

<sup>179</sup> Cf Mearsheimer, 2001, ch. 3 for a detailed discussion of this concept.

<sup>180</sup> I have compiled this categorization from the following surveys and analyses of transnational security issues in the post-Cold War era: Paul Smith, "Transnational Security Threats and State Survival: A Role for the Military?," *Parameters*, vol. 30, no. 3, 2000; Alan Dupont, "New Dimensions of Security," in Denny Roy, ed., *The New Security Agenda in the Asia-Pacific Region*, Macmillan, London, 1997; James Sperling and Emil

Economic threats are:

both diffuse and systemic; they may be unintended or a secondary consequence of state action. Nonetheless, the consequences of macroeconomic malfeasance by a major economic power, the collapse of financial markets triggered by a major debt repudiation, a generalized hyperinflation, or a collapse of currency markets could, singularly or in combination, threaten the very survival of the state<sup>181</sup>

In addition to these, Dupont enumerates still more potential sources of threat:

The fundamental point is that economic threats to security in the form of disruptions to global commerce and financial transactions, economic coercion, trade sanctions, protectionism, resource disputes and arguments over market share and market access constitute a whole range of relatively new threats to security which may be just as serious and pervasive as traditional politico-military threats.<sup>182</sup>

Given that economic power can be employed in so many ways, and given the wide-ranging nature of the threats it generates, states can wield the economic weapon with considerable discrimination and control. Admittedly, a state is unlikely to prosecute those economic attacks that threaten another state's survival in an unequivocal manner. For instance, an embargo against a nuclear-weapon state, which at once threatened the latter's vital interests would be akin to launching upon it a nuclear first strike; both cases would doubtless invite nuclear retaliation. Thus, an important proviso is in order. A state's range of *usable* economic instruments therefore extends only to those that could be employed without unambiguously jeopardising a nuclear-armed state's manifestly vital interests. Translated in practical terms, nuclear-weapon states can only threaten each other's survival over the medium- and long-term.

Properly understood, technological power is a prerequisite for economic power.<sup>183</sup> On its own, technological power can do very little in way of harming a state's vital interests. A recent exception may be cyberwarfare, with which Russia experimented in May 2007 when it

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Kirchner, "Economic Security and the Problem of Cooperation in Post-Cold War Europe," *Review of International Studies*, vol. 24, 1998.

<sup>181</sup> Quoted in Sperling and Kirchner, 1998, p. 230

<sup>182</sup> Dupont, 1997, p. 36

<sup>183</sup> Sperling and Kirchner, 1998, pp. 224-25; Edward Luttwak, "Power Relations in the New Economy," *Survival*, vol. 44, no. 2, 2002, p. 10; Friedberg, 1991, p. 275. When the level of technology is equivalent between states, more populous countries will generate greater output. Technologically superior countries, however, will need less population to produce the same output.

delivered a ‘distributed denial of service’ (DDOS) attack on Estonia after the latter provoked a diplomatic row with Moscow when it removed the Bronze Soldier (a Soviet-era war memorial) from its capital Tallinn. This DDOS internet-levelled attack affected over one million computers, and temporarily paralysed Estonian telecommunications services and government, financial, and media websites.<sup>184</sup> Nevertheless, it remains inconceivable that a state could marshal this technology in a manner that threatened a nuclear-weapon state’s vital interests; at least, not without incurring devastating nuclear retaliation. Technology is a fungible asset that can readily be channelled down various avenues of state power. Hence, as James Sperling and Emil Kirchner note, the very “source” of economic power “is dominance of the technological frontier”.<sup>185</sup>

Only in the worst-case scenario can diseases and international pandemics threaten the survival of the state.<sup>186</sup> For instance, one need only witness the devastating effects of the AIDS epidemic in much of sub-Saharan Africa. Admittedly, were this epidemic to endanger state survival, it would do so chiefly by undermining the *economic* foundations of the state.<sup>187</sup> That is, the large-scale loss of life would adversely affect a state’s labour force, without which a state cannot remain politically viable. In any case, it is all but impossible for a state to wield this category of threats in any meaningful way. Perhaps a country could infect a nuclear-weapon state’s population with a lethal pandemic, but the ramifications of such an act come dangerously close to those associated with the radiation effects of nuclear weapons. Namely, it would provide sufficient justification for destroying the attacker’s cities that are held hostage by the victim state’s second-strike nuclear forces.

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<sup>184</sup> The Economist, “Cyberwarfare: Newly Nasty,” *The Economist*, May 26th-June 1st, 2007, p. 61

<sup>185</sup> Quoted in Sperling and Kirchner, 1998, p. 225

<sup>186</sup> Smith, 2000, p. 85

<sup>187</sup> *Ibid*, 2000, p. 85



Global environmental degradation and climate change currently pose a plausible threat to state survival in only one way: rising sea levels.<sup>188</sup> Indeed, for several South Pacific states, such a prospect constitutes their primary national security threat.<sup>189</sup> Still, this potentiality is limited specifically to small island states or to countries with maritime borders, none of which are nuclear-armed great powers (the focus of the present study). Thus, it is of little relevance to my argument. Moreover, it would be ludicrous to assume that a state can effectively wield the threat of rising sea levels to endanger another's survival.

In sum, the above dissection of possible non-military threats to state survival yields an important conclusion: a nuclear-weapon state's survival can be *intentionally* jeopardised only by economic means. Technological power, as stated earlier, is merely an adjunct and facilitator of economic power. Importantly for balance-of-power theory in the nuclear age, this analysis would suggest that, among nuclear-weapon states, balancing – as a function of the survival imperative – manifests itself largely in the economic dimension of international politics. Thus far, the discussion has been entirely theoretical. A brief consideration of an important empirical corroboration of this finding is documented below.

An extensive debate exists as to why the Soviet state collapsed, and there are no signs of any imminent agreement. Rather, three broad schools of thought constitute the debate: (1) the economic implosion thesis; (2) the triumphalist (or vindicationist) explanation; and (3) the 'Gorbachev as Great Man' explanation.<sup>190</sup> It is with the first approach that we are here concerned. Indeed, this school of thought stresses that the Soviet state's collapse had a

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<sup>188</sup> Ibid, 2000, p. 86

<sup>189</sup> Ibid, 2000, p. 86

<sup>190</sup> For the first school, refer to the following footnotes on the collapse of the USSR. For the second school, see Paul Wolfowitz's review essay, "How the West Won," *National Review*, September 6, 1993; Vladislav Zubok, "Why Did the Cold War End in 1989? Explanations of 'The Turn'," in Odd Westad, ed., *Reviewing the Cold War: Approaches, Interpretations, Theory*, Frank Cass, London, 2000, p. 355. For the third school, see Richard Herrmann & Richard Ned Lebow, eds., *Ending the Cold War: Interpretations, Causation, and the Study of International Relations*, Palgrave Macmillan, 2004, p. 16; Archie Brown, "Gorbachev and the End of the Cold War," in Richard Herrmann & Richard Ned Lebow, eds., *Ending the Cold War: Interpretations, Causation, and the Study of International Relations*, Palgrave Macmillan, 2004; Mark Kramer, "The Role of the CPSU International Department In Soviet Foreign Relations and National Security Policy," *Soviet Studies*, vol. 42, no. 3, July 1990.

dominant economic element. If it can be shown that this economic element reflected the relative distribution of economic capabilities internationally, my argument will be validated to a certain extent. The evidence, keeping in mind its easy manipulation, is nonetheless promising. Thus, we find Soviet Premier Mikhail Gorbachev remarking in May 1986 that “the Soviet Union is ‘surrounded not by invincible armies but by superior economies.’”<sup>191</sup> Celeste Wallander hits the nail on its head when she argues that the West “did *contribute* to the decline of the Soviet Union in limited and specific ways and *thereby played a role in the state’s collapse*.”<sup>192</sup> The West’s successful exclusion of the Soviet Union from the international economic system aggravated the USSR’s internal economic problems, low factor productivity being the most prominent among the latter.<sup>193</sup> But Wallander stresses that even with these important structural problems afflicting the Soviet economy, the latter “was not in danger of grinding to a halt”, thus affirming the primacy of international causes over domestic ones.<sup>194</sup> Wohlforth, reaffirming this causal primacy, recounts the dire economic situation Gorbachev found himself in at the end of 1989, when “NATO held a long list of trade restrictions against the Warsaw Pact and a European Community was on the verge of a new wave of exclusionary economic integration.”<sup>195</sup>

Even those inclined to assign the blame for the Soviet Union’s collapse to Gorbachev’s reforms – his ‘perestroika’ and ‘glasnost’ policies of economic restructuring and political liberalization respectively – overlook the very motivation for those reforms. And yet Russell Bova argues that Gorbachev’s policies, which indeed precipitated the unravelling of the Soviet Union, were motivated more by external concerns than they were by internal

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<sup>191</sup> Quoted in Waltz, 1993, p. 57

<sup>192</sup> Quoted in Celeste Wallander, “Western Policy and the Demise of the Soviet Union,” *Journal of Cold War Studies*, vol. 5, no. 4, 2003, p. 137. First emphasis in original.

<sup>193</sup> Ibid, 2003, pp. 144 & 146-147

<sup>194</sup> Quoted in *ibid*, 2003, p. 148

<sup>195</sup> Quoted in William Wohlforth, “Realism and the End of the Cold War,” Michael E. Brown, Sean M. Lynn-Jones, & Steven E. Miller, eds., *The Perils of Anarchy: Contemporary Realism and International Security*, MIT Press, Cambridge, 1995, p. 34

ones.<sup>196</sup> Gorbachev believed that for the Soviet Union to retain its position in international politics, Moscow had to adjust to the evolving global economic climate. He believed his reforms would be a significant step in this direction, but did not anticipate their actual effects.<sup>197</sup> At bottom, econo-centric explanations of the dissolution of the Soviet Union hold considerable merit, and seem to fit much better with the facts than do alternative hypotheses.

### III. CONCLUSION

What then are the implications of the findings presented in this chapter? The discussion above posits that balancing among nuclear-weapon states is voided at the military level, and is instead channelled into the economic dimension of international politics. This therefore implies that the relative-gains problem is shifted away from the military arena and into the economic one. Indeed, studies by realists in the field of international political economy stress that relative-gains seeking is prominent in the economic relations of states.<sup>198</sup> But they nowhere argue that this obtains because relative-gains seeking at the military level is rendered altogether unnecessary by second-strike nuclear arsenals. Nor do these studies posit, as I do here, that this concern for relative economic gains is a direct function of the fact that a state's survival can be intentionally undermined economically. Consider, as example, Peter Liberman's study of relative economic gains. He asserts unequivocally: "The most basic condition affecting a state's sensitivity to relative gains is the degree of military threat posed by its rival/partner."<sup>199</sup> He adds that "[w]hen war is improbable, states worry less about shifts in relative power".<sup>200</sup> To him, "nuclear deterrence has dampened the military significance of

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<sup>196</sup> This case is advanced in Russell Bova, "The Soviet Economy and International Politics," in Michael Ellman and Vladimir Kontorovich, eds., *The Disintegration of the Soviet Economic System*, Routledge, London, 1992.

<sup>197</sup> Ibid, 1992, p. 52

<sup>198</sup> See for instance Michael Mastanduno, "Do Relative Gains Matter? America's Response to Japanese Industrial Policy," in David Baldwin, ed., *Neorealism and Neoliberalism: The Contemporary Debate*, Columbia University Press, 1993, esp. pp. 256-7; Grieco, 1993

<sup>199</sup> Quoted in Peter Liberman, "Trading with the Enemy: Security and Relative Economic Gains," *International Security*, vol. 21, no. 1, 1996, p. 151

<sup>200</sup> Quoted in *ibid*, 1996, p. 151

economic advantage and mitigated the security component of the relative-gains problem”.<sup>201</sup>

How, in this last quote, can the second clause follow from the first when a state’s survival can be threatened economically? Simply put, nuclear deterrence does not guarantee state survival, as the case of the Soviet Union demonstrated all too well.

Whereas nuclear weapons are a sure guarantee of a state’s military invulnerability, no such remedy exists for economic vulnerability. Hence, if my argument is valid, balances of economic power should be a recurrent feature of international politics in the nuclear age. The urgency with which they form, however, should be greatly reduced, seeing as stakes are higher in security affairs than they are in economic ones; a state’s survival is more promptly threatened militarily (in a conventional world only) than it is economically.<sup>202</sup> But the fact that a Cold War superpower can fall by the wayside as a result of relatively insufficient economic power can only reinforce in other nuclear-weapon states the need to balance superior economic power for reasons of security. Finally, if the analysis presented in this chapter is right, one would expect a balance of economic power to form in the post-Cold War era, or at least economic balancing behaviour on the part of secondary powers. After all, the United States remains today unchallenged as the pre-eminent economic power. It now remains to evaluate my argument against the empirical record, a naturally difficult and essentially inconclusive enterprise. But for lack of a better means by which to test theories in an empirical science such as international relations, an empirical evaluation is in order.

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<sup>201</sup> Quoted in *ibid*, 1996, p. 175

<sup>202</sup> Charles Lipson, “International Cooperation in Economic and Security Affairs,” in David A. Baldwin, ed., *Neorealism and Neoliberalism: The Contemporary Debate*, Columbia University Press, 1993, p. 75

## CHAPTER 4: CONCLUSION – AN EMPIRICAL EVALUATION

The hypothesis formulated thus far stands as follows: in the unipolar post-Cold War era defined by the military, economic, and political preponderance of the U.S., secondary states possessed of second-strike nuclear arsenals refrain from balancing superior American conventional and nuclear military power and instead channel their balancing efforts primarily into the economic dimension of international politics. This they do because their survival is not merely contingent upon remaining militarily invulnerable, but also economically invulnerable. And while deterrent strategies make possible the former, there is no conceivable means of fulfilling the latter other than to accumulate an appropriate amount of economic potential relative to others; enough to stave off economic bullying without engendering counterbalancing actions on the part of others. It remains now to evaluate this hypothesis in accordance with philosophy-of-science standards, as any scientific hypothesis should, lest contrary evidence is prematurely accepted as a refutation of my argument.

### I. IS AMERICAN MILITARY POWER BEING BALANCED?

A cursory glance at the empirical record is now in order. The focus is on the secondary nuclear-armed powers: China, Russia, France and Britain.

In a speech delivered to the United Nations General Assembly in 2003, former Chinese foreign minister Li Zhaoxing stated: “China is of the view that the future well-being of mankind hinges on ... world multi-polarization.”<sup>203</sup> And yet, Beijing’s hopes for a balanced world do not seem to extend to the military dimension of international politics, given that it has until recently largely refrained from military balancing behaviour in the post-

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<sup>203</sup> Li Zhaoxing, “Statement by Chinese Foreign Minister Li Zhaoxing at General Debate of the 58th Session of the UN General Assembly,” Permanent Mission of the People’s Republic of China to the United Nations Office at Geneva and Other International Organizations in Switzerland, <http://www.china-un.ch/eng/ljzg/zgwjzc/t85895.htm>, accessed October 2007

Cold War era. China has since 1964 pursued a strategy of minimum deterrence. Recent figures estimate China's nuclear arsenal at approximately 145 deployed nuclear warheads, in stark contrast to the American arsenal, which currently stands at 4552 deployed nuclear warheads.<sup>204</sup> China remains without a sophisticated blue water navy, and its aerial and maritime power-projection capabilities remain limited. Economically, however, China and the U.S. are fiercely competitive. Yuan-Kang Wang argues that Beijing's balancing behaviour is primarily of an economic nature. Even in the face of American military superiority, he stresses, "China's grand strategy takes economic development as its primary goal".<sup>205</sup> The U.S. Congress has expressed discontent at China's relatively lenient labour and environmental standards. The Chinese government insists it cannot effectively monitor adherence to these standards, but few fail to appreciate that China lacks the will to enforce compliance, especially when violating such standards generates economic gains relative to the U.S. Moreover, Congress has charged China of counterfeiting American goods, but to no avail.<sup>206</sup> As the world's fastest growing economy, China no doubt understands that greater economic growth means greater prospects of survival.

Article 1 of the 1997 'Russian-Chinese Joint Declaration on a Multipolar World and the Establishment of a New International Order' states: "the Parties shall strive to promote the multipolarization of the world".<sup>207</sup> This objective notwithstanding, Russia seems little concerned with American military unipolarity. Indeed, Moscow has undertaken reductions in all three legs of its strategic triad between 1991 and 2005, and further reductions are

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<sup>204</sup> The estimate of China's deployed warheads is valid for November 2006. Hans Kristensen, Robert Norris, and Matthew McKinzie, *Chinese Nuclear Forces and U.S. Nuclear War Planning*, Federation of American Scientists and Natural Resources Defense Council, November 2006, p. 202. The U.S. figure is valid for January 2007. Current U.S. Nuclear Forces, *The Nuclear Weapon Archive*, <http://nuclearweaponarchive.org/Usa/Weapons/Nukeforce.html>, accessed April 2007

<sup>205</sup> Quoted in Yuan-Kang Wang, "China's Grand Strategy and U.S. Primacy: Is China Balancing American Power?" Center for Northeast Asian Policy Studies, The Brookings Institution, July 2006, p. 16

<sup>206</sup> I am grateful to Marc Lombard, Department of Economics, Macquarie University, for these points.

<sup>207</sup> Declaration text, "Russian-Chinese Joint Declaration on a Multipolar World and the Establishment of a New International Order," <http://www.fas.org/news/russia/1997/a52--153en.htm>, accessed October 2007

planned.<sup>208</sup> These data are telling given Washington's withdrawal from the Anti-Ballistic Missile (ABM) Treaty in 2001. Although Russian defence spending has increased "slightly" since 2001, this has had more to do with the secessionist dispute over Chechnya than with American military power.<sup>209</sup>

France and the United Kingdom have both pursued strategies of minimum deterrence since 1960 and 1952 respectively.<sup>210</sup> Former French President Jacques Chirac often voiced his fondness for multipolarity, and yet took no significant steps to balance American military power.<sup>211</sup> French and British nuclear arsenals have remained relatively constant for decades, and have not exceeded several hundred nuclear weapons each. On both sides of the Channel, military spending since the last years of the Cold War has decreased markedly. In 2002, France spent on defence barely 64% as much as it did in 1985. Remarkably, Britain spent on defence in 2002 less than 47% what it did in 1985.<sup>212</sup> On the economic front, however, both are members of the European Union. And between the EU and the U.S., economic tensions abound.<sup>213</sup> Consider, for example, the heated competition between American-owned Boeing and the Airbus consortium comprised of France, Germany, Britain, and Spain; the EU's ban on hormone-fed beef; and the EU's opposition to genetically modified (GM) food. The Boeing-Airbus contest, the primary economic dispute between the EU and the U.S., has been particularly intense over the issue of 'launch aid'. Specifically, the U.S. opposes the provision of forgivable loans to Airbus by certain European governments, citing unfair competition.<sup>214</sup>

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<sup>208</sup> See Pavel Podvig, *The Russian Nuclear Arsenal*, International Relations and Security Network, Zurich, March 1, 2006

<sup>209</sup> Lieber and Alexander, 2005, p. 121

<sup>210</sup> For a detailed account of France's minimum deterrent posture, officially 'proportional deterrence', see David Yost, "French Nuclear Targeting," in Desmond Ball and Jeffrey Richelson, eds., *Strategic Nuclear Targeting*, Cornell University Press, Ithaca, 1986, pp. 127-156. For a detailed account of Britain's minimum deterrent posture, see Lawrence Freedman, "British Nuclear Targeting," in Desmond Ball and Jeffrey Richelson, eds., *Strategic Nuclear Targeting*, Cornell University Press, Ithaca, 1986, pp. 109-126

<sup>211</sup> On Chirac's fondness for multipolarity, see Marcel Herpen, "France: Champion of a Multipolar World," *In the National Interest*, May 14, 2003, online version

<sup>212</sup> Calculated from Lieber and Alexander, 2005, p. 118.

<sup>213</sup> I am grateful to Marc Lombard, Department of Economics, Macquarie University, for the following points.

<sup>214</sup> Timothy Carney, "Boeing vs. Airbus: Clash of the Corporate Welfare Titans," Competitive Enterprise Institute, July 14, 2005, online version

On both sides, the government intervenes in the market by means of subsidies, ‘soft loans’ (ie loans with low interest rates), tax cuts, and tax credits, and outright financial grants. At issue in this dispute is greater market share of the lucrative commercial aviation industry. Reflecting the dynamics of relative-gains seeking, Timothy Carney contends that “Europeans ... seem willing to lose money in helping Airbus, as part of the cost of beating the U.S.”<sup>215</sup> Given the stakes involved, and given the fact that both companies contribute importantly to their respective home economies, government involvement in the dispute is to be expected. The disputes over beef and GM food are supposedly predicated upon health concerns, but few fail to see the deeper economic competition that underlies this rhetoric.

Strikingly, this evidence is set against a backdrop of *rising* American military power. Since 2001, the U.S. “has carried out a formidable military buildup”.<sup>216</sup> Clearly, the nuclear-armed secondary powers worry little about American military power.

## II. RECALCITRANT ‘FACTS’

Theories hold across all space and time; their applications are infinite. And yet only a finite amount of evidence can ever be gathered in support of a theory. Thus, all theories are underdetermined by the ‘facts’. This consequently begs the question: how many white swans must one observe to ‘corroborate’ (not confirm) the hypothesis that all swans are white? The question is rhetorical. Surely, then, there must be more to evaluating an hypothesis than amassing facts in its support. Many more facts could have been adduced in Section I, and yet little more would have been gained in the process. More emphasis should thus be accorded the qualitative aspects of corroboration. And toward this end, ‘hard’ tests are particularly effective. How then does my argument fare when confronted with such a test? I have claimed that states, for purposes of security, actively intervene in the economy to further the pursuit of

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<sup>215</sup> Quoted in *ibid*, 2005, online version.

<sup>216</sup> Lieber and Alexander, 2005, p. 121



relative economic gains. To be sure, such behaviour conflicts with the laissez-faire economic platforms of certain governments. Therefore, if even these governments behave as I predict, my argument would be validated to a certain degree. As members of the moderately liberal (non-interventionist) UMP party, one wonders whether Jacques Chirac and his successor, Nicolas Sarkozy, abstain(ed) from the type of intervention my argument predicts. French industrial policy, however, has not shied from intervening in the economy, especially when relative economic gains were at stake. In 2005, the then prime minister, Dominique de Villepin (UMP), following a failed attempt by American-owned PepsiCo to take over the French food giant Danone, outlined “a list of strategic industries that would remain forever in French hands”.<sup>217</sup> In relation to Boeing-Airbus subsidies, Washington outspends the European governments combined by a ratio of ten to one.<sup>218</sup> Situations such as these remind secondary powers of the risks of leaving U.S. economic power unchecked, and thus encourage interventionist industrial practices. Hence France’s dilemma, which is succinctly captured by *The Economist*: “The trouble with moving from interventionist industrial policy to a hands-off, liberal approach is that you have to intervene, and get your hands dirty, to get from here to there.”<sup>219</sup> Much the same way that the survival motive impels civilian leaders to intervene in military policy<sup>220</sup>, the survival imperative sometimes occasions governments to intervene in the economy, even though the latter is often largely held in private hands.

The indeterminacy of neorealist theory further complicates any attempt at falsifying my argument. Because systems-level causes do not determine state behaviour in neorealism, any discordant fact can be ‘explained away’ by invoking unit-level forces. Must one take Beijing’s announcement in March 2007 of a 17.8% increase in its defence budget as a refutation of my argument? Hardly, since neorealist theory merely argues that the structure of

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<sup>217</sup> Quoted in *The Economist*, “French Industry Policy: Getting Better?” *The Economist*, July 14, 2007, p. 67

<sup>218</sup> *The Economist*, “Airbus: Happy landing?” *The Economist*, June 23, 2007, p. 67

<sup>219</sup> Quoted in *The Economist*, 14/7/07, p. 68

<sup>220</sup> Barry Posen, *The Sources of Military Doctrine: France, Britain, and Germany between the World Wars*, Cornell University Press, Ithaca, 1984

the international system constrains the range of possible state behaviours, and does not dictate to states which behaviours to follow. Because second-strike forces render void the need to balance superior military power, China's seeming decision to initiate larger military balancing efforts against the U.S. could scarcely have been induced by the structure of the international system. Rather, unit-level factors (eg Beijing's *belief* that military superiority matters in the nuclear age) better explain this decision. China's recent intentions to expand its nuclear arsenal are similarly explained. Perhaps Beijing, concerned with the increasing accuracy of U.S. strategic forces (which was a stated objective of the classified U.S. Nuclear Posture Review of 2002), wishes to fashion a limited nuclear war-fighting capability, which naturally involves significant military investment, and would thus constitute military balancing. The argument presented herein argues that nuclear-armed states refrain from military balancing because they understand the conclusions reached in chapter 2. But one does not intuit the fact that a limited nuclear war, local or central, cannot be controlled; one learns it. And state learning is a unit-level force. To say that my argument is flawed by the fact that China believes a limited nuclear war can be controlled is akin to saying that balance-of-power theory is flawed by the fact that Hitler believed he could transcend the constraints of the international system in his attempt to conquer Europe. Systemic constraints are there for all to see, and while states usually perceive and act upon them in similar ways, this is not always the case.

#### **IV. GAUGING THE STRENGTH OF THE UNIT-LEVEL CHALLENGE**

Military balancing among nuclear-weapon states, while uncommon, has its roots in unit-level causes: namely, in the perception that minimum deterrence does not suffice to stave off structural dispositions to balance superior military power. During the Cold War, for example, minimum deterrence held little sway in both Washington and Moscow.<sup>221</sup> Soviet Premier

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<sup>221</sup> For an incisive account of Washington's disdain for minimum deterrence during the years 1945-1960, see David Alan Rosenberg, "The Origins of Overkill: Nuclear Weapons and American Strategy, 1945-1960,"

Nikita Khrushchev (1958-1964) did attempt, however, to pursue a strategy of minimum deterrence. In part a result of this, he lost his post, as many of his Politburo colleagues eschewed minimum deterrence, and placed their faith instead in nuclear superiority.<sup>222</sup> In Soviet-American relations, it is safe to say, the history of minimum deterrence is a history of poverty. This aberration notwithstanding, every other nuclear-weapon state has indeed pursued a strategy of minimum deterrence.<sup>223</sup> As chapter 2 demonstrated, minimum deterrent arsenals are in fact sufficient to ward off the military balancing imperative.

If the argument presented in this thesis is correct, and if it is indeed true that state survival is contingent not only upon military, but also economic, invulnerability, then the unit-level challenge (ie second-strike nuclear forces) to balance-of-power theory will be feeble indeed. Because states lack the means to ensure economic invulnerability, nuclear-weapon states are condemned to balance superior economic power. Hence, to paraphrase that old adage, the foregoing analysis would appear to suggest that even among nuclear-weapon states, it is balance-of-power politics as usual.

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*International Security*, vol. 7, no. 4, 1983. Rosenberg relies primarily on recently (at the time of publication) declassified primary source material. And for the years 1960-1983, see Desmond Ball's thorough analysis of the evolution of the U.S. single integrated operational plan (SIOP), in accordance with which a U.S. nuclear attack would proceed in the event of a crisis. Ball, 1986, pp. 57-83. Ball also relies heavily on primary sources. Regarding the Soviet Union's counterforce-oriented nuclear doctrine, see William Lee, "Soviet Nuclear Targeting Strategy," in Desmond Ball and Jeffrey Richelson, eds., *Strategic Nuclear Targeting*, Cornell University Press, Ithaca, 1986, pp. 84-108.

<sup>222</sup> Mike Bowker and Phil Williams, *Superpower Detente: A Reappraisal*, SAGE Publications, London, 1988, p. 37

<sup>223</sup> It is questionable, however, whether India and Pakistan are genuinely committed to the strategy's logic or whether they are financially constrained into pursuing minimum deterrence, a relatively cheaper deterrent strategy.

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