5-3-2013

A False START: The Role of Ballistic Missile Defense in US-Russian Relations

Matthew Elisha Dillon
matthewedillon@gmail.com

A False START:

The Role of Ballistic Missile Defense in US-Russian Relations

---

Matthew E. Dillon

The University of Tennessee, Knoxville

College Scholars & Baker Scholars Honors Programs

Undergraduate Thesis

Defense held on the 3rd of May 2013

Defense Committee:

Dr. Brandon Prins, Faculty Mentor

Dr. Stephen Blackwell, Faculty Mentor

Dr. Wonjae Hwang, Committee Member

Dr. Jeffrey Kovac, College Scholars Director

Thesis Abstract

In response to Iranian nuclear ambition the US and NATO have enacted a collective security initiative that will install Ballistic Missile Defense (BMD) technology throughout Europe. However, during an otherwise cooperative period in US-Russian relations (e.g., the Obama administration's "Reset" and the New Strategic Arms Reduction Treaty or START), NATO's posture in Eastern Europe has compelled Russia to likewise reinforce its defenses and develop measures to incapacitate opposing BMD systems. This research analyzes the political impacts of BMD on US-Russian relations, focusing particularly on NATO's European Phased Adaptive Approach (EPAA) program--described above.

Considering the paucity of theoretical treatment in the literature, technological and policy considerations are synthesized with an examination of rational deterrence and security dilemma models. Addressing these issues, the analysis is divided into three sections: 1) an evaluation of BMD technology finding that the EPAA will legitimately threaten Russia's nuclear deterrence in its more advanced phases, 2) a combined theoretical and statistical analysis case study, which argues that resolution of BMD disputes constitute a *conditio sine qua non* for US-Russian cooperation, and 3) a policy review that recommends the integration of Russia into the EPAA as an ideal solution to the BMD quandary. Ultimately, this research will contribute to our understanding of the increasingly complex political and legal environment surrounding nuclear technologies as well as the imminent role of the US-Russian relationship in global security.

Table of Contents

Part I: Introduction

Geopolitical Context of the "False START"

In 1970 the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) entered into force and institutionalized the nonproliferation regime and the International Atomic Energy Agency (IAEA)--the most widely supported international treaty organization in history. The NPT articulated the three integral components of the new regime: a commitment to good faith negotiations in accordance with the primary objective of general and complete nuclear disarmament, the right to freely exchange civilian nuclear technologies and testing information, and the prevention of nuclear weapons proliferation to states outside of the UN Security Council's five permanent members ("Treaty on the Non-Proliferation of Nuclear Weapons", 2005). The NPT prescribed measures to reconcile the imperative for nuclear nonproliferation with viable methods for developing countries and other non-weapons states to access nuclear technology for energy production purposes. Pursuant to the conventions set forth by the nuclear powers, the NPT proved instrumental in maintaining the status quo during the 20th century; that is to say, by the end the 20th century and into the early 21st century the nuclear club consisted exclusively of the five authorized states and three non-signatory states (India, Pakistan, and Israel).

However, the 21st century has witnessed a dramatic shift in the non-proliferation policy landscape, and article IV of the NPT, encouraging free exchange of technologies, has supplied rogue regimes with the means necessary to launch nuclear weapons programs. North Korea, Iran, and, allegedly, Iraq (deemed the "Axis of Evil" in George W. Bush's 2002 State of the Union

Address) were considered to be in possession of illicit weapons of mass destruction (WMDs) or in the process of re-engineering civilian reactors to be capable of refining weapons-grade materials. As a result, the non-proliferation regime has confronted these fledgling nuclear states with economic and diplomatic sanctions that have thus far failed to deter the development of nuclear weapons programs. Effectively rendering the non-proliferation regime impotent, North Korea and Iran continue to play a volatile role in regional and global politics.

Indeed, Iran's nuclear program epitomizes the enrichment loophole, the so-called "Achilles' heel" of the NPT, and other defects at the core of the nonproliferation regime (ElBaradei, 2007). In the 1950s Iran legally received nuclear energy technology from Eisenhower's *Atoms For Peace* program, which supplied equipment and information to various institutions as well as the first civilian nuclear reactor in Iran. Despite having committed to both the Non Proliferation Treaty and the Additional Protocol, Iran has exploited a key flaw of the NPT by using its civilian reactors as a source for advancements in weapons technology. In 2002 the US intelligence community exposed indications of clandestine Iranian nuclear research, and the IAEA confirmed suspicions of Iranian nuclear ambitions in a report later released in 2010 (Bruno, 2013). Predicting that Iran would possess Inter Continental Ballistic Missiles (ICBMs) by 2015, the Bush administration proposed theater Ballistic Missile Defense (BMD) systems in Europe in response to growing national and global security threats abroad (Woolsey, 2010).

The Obama administration entered office soon thereafter and introduced a substitute for Bush's plan, a four-phased NATO missile defense initiative called the European Phased Adaptive Approach (EPAA). Since the deployment of EPAA technologies in 2011, the United States has implemented a collective defense strategy, which will consist of radar and BMD systems installations in allied territories such as Poland, Romania, Spain, and Turkey, when fully

actualized in 2021. As such, the US strives to protect its NATO allies from an impending Iranian nuclear attack with Aegis-equipped Ticonderoga class cruisers and Arleigh Burke destroyers designed to intercept short and intermediate-range ballistic missiles. Despite persistent reassurance that the EPAA is a preemptive countermeasure singularly targeting Iran, NATO's gradual encroachment into Eastern Europe has incited political friction between the two strategic competitors during an otherwise cooperative period in US-Russian relations.

Regardless of its repeated overtures to cooperate with Russia on European BMD at the Lisbon Summit in 2010, NATO has consistently demonstrated a reluctance to act on any proposed procedure by which Russia could be integrated into its defense network ("Lisbon Summit Declaration", 2010). Unconvinced that the missile shield is merely a reaction to Iranian nuclear advancement, Russian officials contend that the EPAA will inhibit its nuclear deterrent in the near future and, consequently, jeopardize Russia's national security. Accordingly, Sergei Ryabkov, deputy foreign minister of Russia, indicated that resolution of BMD disputes represents a *conditio sine qua non* for the continuation of US-Russian arms control cooperation, stating, "For want of a better solution, we are demanding to be given legally-binding safeguards... Russia does not consider disarmament talks with the United States possible if they don't include missile defense" ("Moscow demands legal guarantees on NATO missile shield," 2012). Despite the "Reset" of relations and ratification of the New Strategic Arms Reduction Treaty (START) in 2009 and 2010 under the Obama and Medvedev administrations, the US and Russia continue to clash over critical security issues, instigating an antagonistic political climate that may compromise international cooperative efforts within the arms control and nonproliferation movement.

Statement of Purpose

The nexus of nuclear policy described above poses a salient security dilemma for all involved states. Iran pursues nuclear ascendency to expand its influence in the regional politics of the Middle East, while enduring the economic and political costs imposed by UN sanctions. As a consequence, the US and its European allies collaborate to develop technologies that will ensure collective security against the rising threat of nuclear attack. Likewise, perceiving a security threat from the US and NATO, Russia has been compelled to follow suit and fortify its strategic defenses. Cognizant of states' predisposition to defense escalation (a defining characteristic of the Security Dilemma paradigm), this research synthesizes theoretical considerations with in-depth policy analysis as a means of cultivating a more nuanced understanding of the BMD issue, which will contribute to future policy that reverses this "spiral model."

The primary purpose of this research is, therefore, to reinforce the policy discussions in the BMD literature with theoretical approaches, cohesively and holistically treating the technology's past effects and future implications in the international system. As nuclear technologies proliferate to rogue regimes like Iran and North Korea, it will be pivotal not only to understand the role of BMD in world politics but to identify the means by which the two chief nuclear powers, the US and Russia, may cooperate to address global security issues. Exemplified by the dichotomy between the New START treaty and the EPAA, US-Russian relations display a capricious progression toward cooperation and disarmament, though the prospect of conflict between major powers persists. Ultimately, this thesis contributes to the body of knowledge concerning the increasingly complex political, diplomatic, and legal environments surrounding nuclear technologies as well as the imminent role of US-Russian relations in global security.

Overview & Structure

A comprehensive treatment of BMD and its effects on US-Russian relations, the work is organized into three chapters each corresponding to a major theme in the body of literature concerning BMD: the first chapter provides a chronology of BMD development and an evaluation of its technological feasibility. The second chapter consists of a holistic and multi-methodological case study of the effects of BMD on US-Russian relations as well as an extrapolation of the case study into theoretical considerations. The third and final chapter examines the implications of BMD to public policy and culminates in the formulation of recommendations for future US BMD policy.

The first chapter, split into two sections, relays fundamental findings that predicate the arguments in the following chapters: an account of the historical trends underpinning presidential administrations' support of BMD as well as an evaluation of BMD feasibility, efficacy, and threat to Russian deterrence. Whereas the first section chronicles the history of BMD from its advent under the Reagan administration's Strategic Defense Initiative in 1983 to Obama's contemporary EPAA platform, the second section--drawing from germane government documents, independent policy research, and technical reports concerning BMD--reviews the technology proposed for forthcoming phases of the EPAA. The second chapter comprises a discussion of BMD within the frameworks of the Rational-Deterrence and Spiral theoretical models as well as an original case study, which analyze the UN General Assembly Roll-call Voting data compiled by Strezhnev and Voeten in order to empirically measure the magnitude of BMD's impacts on the US-Russian relationship.

The first section of the third chapter expounds upon the macroscopic implications of the EPAA in international security policy and the arms control regime, especially observing the legal paradigms established in the START line of arms reduction treaties (1994-2011), and the "Reset" of US-Russian relations in 2011. As a culmination of the quantitative, qualitative, and theoretical findings of the thesis, the third chapter's second section includes a thorough examination of proposed courses of action in regards to BMD policy; moreover, the final chapter explores policy alternatives with which the US and NATO could counter an Iranian nuclear weapon and concludes with comprehensive BMD and arms control policy recommendations.

Part II: Historical Background & Technological Feasibility

Chapter Overview

This chapter of the thesis first presents a detailed historical chronology of the research, development, and policy of BMD technologies, including National Missile Defense systems designed to counteract a nuclear attack on US territory and Theatre Missile Defense designed to protect US troops, allies, and other interests abroad. Furthermore, this chronology will analyze each presidential administration's underlying BMD policy posture, concentrating on five US presidencies over the course of three decades: Ronald Reagan (1981-1989), George H. W. Bush (1989-1993), Bill Clinton (1993-2001), George W. Bush (2001-2009), and Barack Obama (2009-2013). Having outlined the historical background, the following section draws upon germane literature in nuclear engineering and BMD testing reports to determine the feasibility of the ongoing European Phased Adaptive Approach. The final section extrapolates these findings to evaluate the effects of the EPAA on Russian nuclear deterrence.

Historical Background from Strategic Defense Initiative (1983) to Present

BMD systems have in many ways paralleled the advancement of nuclear weapon technologies, representing a crucial area for research and development within the US military complex since the conclusion of World War II in 1945. However, despite the identification of BMD as a future research imperative, its development remained far beyond technological standards until the late 1950's and 1960's when the US launched efforts toward inventing more feasible, prototypical models, such as the Nike-Zeus project of that era (later abandoned due to technological defects). Meanwhile, the Soviet Union had likewise made advances in BMD

development, which culminated in the implementation of its own Galosh anti-ballistic missile defense system and incited more robust US initiatives to deploy these technologies, i.e., the Sentinel BMD system ("History of Russia's ABM" 2002). As a result of the previous decades' progress in ABM and BMD systems, the US and USSR ratified the ABM Treaty, which placed stipulations on further developments, specifically banning national defense systems and limiting both nations to two BMD sites (later amended to one site each), in order to maintain Mutually Assured Destruction deterrent capabilities.

The Soviet Union had for decades employed "an ABM system that was massive, that would have blanketed Moscow with hundreds of H-bomb detonations, and that was ineffective" (Reed & Stillman, p. 191); however, in 1983 President Ronald Reagan put forth policy aimed at developing a legitimate and more effective US BMD system when he announced the Strategic Defense Initiative (popularized as "Star Wars" by opponents of the policy). By chartering SDI the Reagan administration directed "the development of an intensive effort to define a long term research and development aimed at an ultimate goal of eliminating the threat posed by nuclear ballistic missiles" ("Eliminating the threat," 1983). In accordance with the lofty aspirations underpinning SDI, the proposed technologies were ambitiously conceptualized to replace the policy of deterrence and MAD with global defensive measures using x-ray devices and other non-nuclear alternatives to destroy missiles ("Strategic Defense," 1987). As the project more and more frequently encountered the difficulties of insufficient technology, mounting estimates of financial cost, and legal complications with the ABM Treaty, the SDI organization adapted its original objectives into the land-based and space-based "Phase I" deployment with far diminished capabilities.

Considering the potential costs of the prospective operation as well as the shifting international political environment, President George H. W. Bush's administration further revised the "Phase I" initiative and established a new approach to BMD called Global Protection Against Limited Strikes (GPALS). Primarily a reevaluation of the Reagan administration's policies in light of the impending fall of the Soviet Union, GPALS was modeled to be a BMD system that was less than half the size of the SDI Phase I project and that would address not only the lessened--although nevertheless present--threat of nuclear attack from the Post-Soviet states but, more importantly, the emerging global trend of the proliferation of ballistic missiles and nuclear weapons technologies ("President's New Focus," 1991). GPALS also differed from previous arrangements in that its central technological development focused on the "Brilliant Pebbles" space-based method of ballistic missile interception. However, before the system was deployed GPALS was determined to be a violation of the AMB Treaty limitations, which became an underlying motivation in the administration's decision to begin negotiations with the Russian government for a more flexible regime to replace the AMB Treaty.

Discontinuing the Bush, Sr. administration's negotiations for an AMB Treaty replacement, President Clinton again narrowed the BMD policy agenda and development proposals of his predecessors in keeping with an expanding canon of contemporary policy on the issue. In 1993 the Department of Defense published its comprehensive review of US defense strategy, the Bottom-Up Review, the recommendations of which shaped the Clinton administration's BMD policy and emphasized three key objectives: US compliance with the ABM Treaty, implementation of "more robust Theater Missile Defense (TMD) combined with more limited National Missile Defense (NMD) technology programs," and, finally, a reduction of BMD investment from the previous administration's nearly $40 billion budget to a budget of

$18 billion ("Bottom-up Review," 1993, p. 43-48). Accordingly, the Clinton administration enacted its BMD policy with the understanding that, although ballistic missiles proved a threat for US allies in regions like Europe, an outright nuclear threat to the United States itself was merely a future concern. NMD, the BMD program receiving the most funding under the administration's policies, was criticized by some in the defense community as an unnecessary allocation of finances in consideration of the absence of a nuclear threat to the US *per se* (Hildreth, 2007).

In addition to the Department of Defense Bottom-Up Review, Congress likewise asserted its influence in the Clinton administration policies and endeavored to put forth legislation regarding both National and Theater Missile Defense: the Ballistic Missile Defense Act of 1995 and the Defend America Act of 1996 (the former having and the latter having not passed). The Act of 1995 contradicted previous internal criticisms of the policy on National Missile Defense and affirmed BMD policy: "1) to adhere to the spirit and letter of the 1972 ABM Treaty; and 2) to direct the limited missile defense resources of the US primarily toward short-range missile threats" ("BMD Act," 1995). The Defend America Act, though not passed by Congress, reaffirmed the findings of the Department of Defense and the 1995 act with a caveat that the US should pursue replacement of the ABM Treaty, much akin to the previous administration's policy ("Defend America Act," 1996). Although representing the two competing attitudes toward the ABM Treaty, both acts agreed that long-range missile threats--estimated to be more than a decade away--should be relegated to future policy formulation, whereas short-ranged missiles presented a much more pressing threat to the US (i.e., North Korean and other rogue regimes' nuclear development).

Drawing this active period in BMD policy to a close, Congress culminated its previous bills, debate, and investigations into a concise enunciation of US NMD policy, the National Missile Defense Act of 1999. The NMD Act of 1999 states: "It is the policy of the US to deploy as soon as possible an effective NMD system capable of defending the territory of the US against limited ballistic missile attack (whether accidental, unauthorized, or deliberate)..." ("NMD Act," 1999). Upon signing the bill into law, President Clinton stipulated four conditions for his administration's execution of a NMD system, stating that the system must be "operationally effective, cost-effective, and enhance US security" as well as adhere to ABM Treaty limitations (Clinton, 1999). Despite the long-lived debate concerning the ABM Treaty and which BMD system to prioritize, both the US executive and legislative branches mandated the deployment of a NMD system; however, at the end of his presidency in 2000 Clinton deferred the deployment decision to the next administration on the grounds that the system did not satisfy those criteria he had laid out, particularly technological standards and a lack of international support.

Taking office shortly after the Clinton administration's decision to postpone NMD, President George W. Bush articulated a resolute policy agenda that identified the soonest deployment of BMD as a goal central to US strategic security efforts. Moreover, the second Bush administration marked a deviation from historical trends in the policy of earlier administrations in response to post-9/11 security threats; ergo, the new administration expanded the scope, budget, and technological expectations of BMD systems. In 2001 President Bush announced the six-month notice of US withdrawal from the ABM Treaty, stating that the treaty "hinders our government's ability to develop ways to protect our people from future terrorist or rogue-state missile attacks" ("U.S. Withdrawal," 2001). Shortly after the official US withdrawal

from the treaty in 2002, President Bush called for "the Secretary of Defense to proceed with fielding an initial set of missile defense capabilities in 2004" ("History of US," 2013).

No longer constrained with ABM Treaty commitments, the Bush administration bolstered financial support of BMD development, instituted a regimen of nearly continuous Aegis system tests, and, ultimately, achieved its goal of establishing ground-based missile interceptor technologies in Alaska in 2004. Thereafter, the US diverted its attention to rising threats in the Middle Eastern region, namely Iranian developments in nuclear and ballistic missile delivery technologies, which could endanger the US and its allies in Europe. In the 2007 report, Proposed U.S. Missile Defense Assets in Europe, the Department of State iterated US concerns for Trans-Atlantic security pending Iran's pursuit of WMDs and, in response, proposed to deploy BMD elements in Europe. These components consisted of the installation of ten interceptors in Poland and a midcourse radar system in the Czech Republic ("Proposed US Missile Defense," 2007); however, before this procedure was enacted, the Barack Obama entered office and altered the methods for placing BMD in Europe.

Recognizing the advantages of European BMD as well as abandoning the unilateral procedures characteristic of the previous administration, the Obama administration amended and fundamentally restructured the BMD approach originally introduced during the Bush presidency. The European Phased Adaptive Approach, introduced in 2009, incorporates more international cooperation and, similarly, reaffirms the role of NATO in constructing the architecture and developing the policy of the four-phased European BMD system ("BMD Review," 2010, p. 24). In his announcement of the EPAA initiative, President Obama compared his and the previous administration's programs, stating, "Our new approach will deploy technologies that are proven and cost-effective and that counter the current threat, and do so sooner than the previous

program" ("Remarks by the President," 2009). Addressing one of the most salient concerns in all of BMD policy, President Obama asserts that the EPAA is not only cost-effective and technologically feasible on a rudimentary level but sufficiently advanced to counter the threat of Iranian nuclear development. In the next section the EPAA will be analyzed in order to determine if contemporary BMD is in reality a viable technology.

Feasibility of the European Phased Adaptive Approach

The European Phased Adaptive Approach is a four-stage NATO initiative for the effective deployment of BMD technologies, which aims to ensure collective security among European nations and the US. The four stages include (Collina, 2013):

- Phase I (2011): The deployment of the USS Monterey (the first BMD equipped ship) to the Mediterranean as well as the deployment of 29 more BMD ships in 2012.
- Phase II (2015): The deployment of the first Aegis-Ashore system in Romania and plans to build 32 more Aegis BMD ships between 2015-2017.
- Phase III (2018): The introduction of the second Aegis-Ashore system in Poland and a total of 32 Aegis BMD ships by 2017.
- Phase IV (2021): BMD platforms will remain the same (land-based in Poland and Romania), further refined technologies developed and implemented, and introduction of space-based sensors.

Accordingly, this review will more thoroughly analyze the technology proposed for the EPAA project and evaluate its feasibility. After the initial review will follow a section, which will determine the level of threat the EPAA system will present to Russian deterrence capabilities--an important consideration for subsequent chapters.

The primary goal of EPAA policy is to install a multi-faceted and easily upgradable system, which is capable of detecting and intercepting short-, intermediate-, and, later, long-range ballistic missiles, expected to be under development or possessed by the Islamic Republic

of Iran. As a collective defense initiative integrated into NATO's Active Layered Theater BMD system, the EPAA is intended to intercept missiles at multiple phases of their trajectory (specifically, the boost, ascent, midcourse, and terminal phases) through the implementation of three key facets of the system's architecture: 1) a network of ground-, sea-, and space-based radars for target detection, 2) ground- and sea-based sites for housing interceptor missiles, and 3) an integrated command, control, and communications network that links installation commanders with both sensors and interceptor missiles ("The BMD System," 2013). The EPAA consists of the sea-based and, in the second through fourth phases (2015-2020), land-based Standard Missile-3 (SM-3) interceptors of the Aegis Weapon System as well as the Army Navy/Transportable Radar Surveillance (AN/TPY-2) system, which have both been deemed to have reached interim operational capability and, thus, were implemented in Phase I in 2011. Designed as a continuous progression of technology and defense architecture, under the EPAA the US will continue testing, developing, and incorporating sensor and interceptor systems in order to realize future capabilities, such as interception of longer range missiles, improving early interception, and increasing ally maritime involvement.

Past investigations into BMD technological feasibility have been markedly bleak, especially considering the US has already invested over $150 billion in the development of a system, which may ultimately prove ineffective in addressing the future threats for which it was engineered. Citing a *Scientific American* article from 1968 and an article from 2008 entitled "The European Missile Defense Folly," Kennette Benedict of the Bulletin of the Atomic Scientists has noted these previous independent investigations and their unfavorable expectations for the system. In "Dream Deterred" Benedict states, "Independent scientists and engineers in the US and Russia have consistently judged past efforts to be failures, and they have written detailed

reviews showing why the plans for such missile defenses are not technically feasible" (Benedict, 2012). As a case in point, in 2012 the National Academy of Sciences issued a report, entitled "Making Sense of Ballistic Missile Defense: an Assessment of Concepts and Systems for US Boost Phase Missile Defense in Comparison to Other Alternatives," which concluded that the US was not technically capable of producing a feasible boost-phase missile defense against Iranian and North Korean nuclear threats ("Making Sense of Ballistic Missile Defense," 2012).

However, recent analysis of the feasibility of the EPAA has been more favorable in regards to the future of the system. Indeed, authors Lewis and Postol of the Bulletin of the Atomic Scientists criticized the findings of the aforementioned report by the National Academy of Science, concluding that the report contradicted the scientific results established in previous studies, advanced erroneous conclusions concerning the EPAA, and, as such, should not serve as a reliable basis for crafting BMD policy (Lewis & Postol, 2012). Independent reviews from other publications have agreed that recent developments in radar and deployment capabilities and technologies have offered BMD more technical credence than previous iterations of the system. Furthermore, although finding the Early Intercept concept (i.e., intercepting missiles shortly after launch) to be "an ineffective organizing principle," the report, Science and Technology Issues of Early Intercept Ballistic Missile Feasibility, presented by the Defense Science Board found the following:

> Pursuit of the current plans for regional BMD, such as envisioned in EPAA, if pursued to completion, will provide an effective regional defense capability--those plans are technically feasible, are making good progress, and enjoy broad political support. ("Science and Technology," 2011, p. 33-34)

Complementing this growing support of BMD technical feasibility in the body of independent research, the Ballistic Defense Agency regularly conducts rigorous intercept flight and sensor testing, which empirically demonstrates the feasibility and reliability of contemporary BMD. According to the data presented in the BMD Intercept Flight Test Record as of February 2013, 73 tests across all programs have yielded 58 successful hit-to-kill interceptions since the launch of development toward an integrated BMD system in 2001; moreover, the Aegis BMD program, the primary component of the EPAA system, exhibits a measure of reliability (24 successful sea-based interceptions out of 30 attempts--or about 80%) in keeping with the average of all BMD programs ("BMD Intercept Flight Test Record," 2013). Regarding the results of BMD testing, the Missile Defense Agency states, "Testing to date has given us confidence in the basic design, effectiveness, and operational capability for short-, medium-, and long-range ballistic missile defense." Granted that the programs represented in these experiments are merely first generation technologies with holistic upgrades underway and ongoing, BMD technologies are currently feasible and mostly reliable apparatuses to address emerging threats and, more importantly, will only become more capable and reliable as the second generation Aegis BMD 4.0.1 and third generation Aegis BMD 5.1 are completed and deployed.

Evaluation of EPAA Threat to Russian Deterrence

Notwithstanding US assertions that the EPAA system is neither intended nor equipped to intercept a ballistic missile launched from Russia, Moscow has openly expressed its concern that US and NATO interceptor missiles fielded in Northern and Eastern Europe during the later phases of the EPAA will pose a substantial threat to Russia's nuclear deterrent. Having espoused a desire to increase cooperation with Russia on this issue at the Lisbon Summit in 2010, NATO announced at the 2012 summit in Chicago that Phase I of US EPAA and NATO BMD had

reached interim capabilities without any concrete progress toward cooperation with the Russian government ("NATO's Relations," 2013). Therefore, Russia perceives European BMD as a *fait accompli* as well as a calculated maneuver intended to undermine its strategic deterrent, and Moscow has accordingly demanded binding legal assurances concerning US and NATO BMD intent and threatened to respond with military countermeasures in the event that BMD could enable a US nuclear first strike.

In the face of mounting tensions between NATO and Russia resulting from BMD concerns, the US maintains that, even if Russia was a target, the EPAA system lacks and does not intend to develop the technical capabilities necessary to intercept a Russian missile. In its EPAA technical overview the Missile Defense Agency outlines currently deployed and proposed BMD technologies and their implications for Russian deterrence in the hopes of dispelling common misconceptions about future EPAA capabilities. Furthermore, the Missile Defense Agency presents four perceptions of EPAA and, correspondingly, their factual contradictions: 1) "the majority of Russian missile trajectories to the US take a Polar route, north and east of EPAA assets," 2) "interceptor launch will not occur until initial ballistic trajectory track is established," 3) "interception is not possible during boost phase," and 4) Aegis Ashore in Poland, close to Russia, will not be able to intercept Russian ICBMs due to a variety of technical constraints ("EPAA BMD Technical Overview," 2012). Nevertheless, due to the flexible and adaptable nature of EPAA infrastructure, Russian officials remain dubious of US intentions and persist in reiterating their apprehension for EPAA potential in the foreseeable future.

Taking into account an international conference held by the Russian Ministry of Defense for the express purpose of explaining the EPAA's effects on Russian deterrence, author Ivanka Barzashka of the Bulletin of the Atomic Scientists delineates the six areas preeminent in Russian

technical concerns (Barzashka, 2012). Whereas Barzashka enumerates six areas of concern, the interconnectivity of these issues allows for a clearer summarization in three broader categories: 1) territorial disputes, 2) excessive technological build-up, and 3) the intrinsically open-ended design of the EPAA platform. First, the Russian government has, to an extent, reasserted its historical sphere of influence, dismissing propositions for BMD placement in Poland and the North Sea as unacceptable infringements on Russian nuclear deterrence and border security. Secondly, the Russian military has opposed to the interceptor upgrades expected to be deployed in the final phases of the EPAA, asserting that: on the one hand, from installations in Poland or Romania these faster interceptors could be used to down Russian ICBMs en route to the US, while, on the other hand, the development of such an upgrade is disproportionate to threats at the level of technology available to the Iranian nuclear program. Finally, the fundamental basis for misgivings among Russian officials is, first and foremost, the ambiguous parameters of the EPAA platform's future--itself a product of the open-ended, flexible and adaptive system the US has sought to implement with Aegis-equipped naval vessels; in other words, Russia underscores the necessity of a formal legal agreement that clarifies US intentions, that clearly defines the final configuration of the EPAA platform pursuant to Russian interests and preferences in the region, and that preserves US-Russian mutual nuclear parity as an integral element in their relationship as defined in the New START Treaty of 2011.

Having withdrawn from the ABM Treaty in 2002, the US appears unwilling to make concessions in these areas of concern, unequivocally refuses to enter into any additional agreements restraining BMD development, and simply reiterates that the EPAA lacks the capability to pose a threat to Russian deterrence. However, in its "Upsetting the Reset" report, the Federation of American Scientists vindicates Russia's concern for the implications of EPAA

Phase III and IV, positing that, based on the analysis of a variety of trajectory models, the use of upgraded interceptor missile technologies in tandem with Aegis-equipped ships would, in principle, allow the US to engage a Russian missile in many cases and, in some limited circumstances, to attempt defense of the entire continental US (Butt & Postol, 2011, p. 29). Moreover, the study concludes that current US policy is contradictory to its objects; that is to say, the EPAA provides marginal security from a possible future Iranian warhead, while endangering the termination of the New START Treaty as well as a return of the arms race. In conclusion, the EPAA system currently poses no legitimate threat to Russian nuclear deterrence, but proposed and potential future technologies (e.g., more sophisticated layered theatre BMD) may pose a substantial threat in the long term. Considering that both the EPAA will enter into full force and the New START Treaty will expire in 2021, understanding the effects of the EPAA on the US-Russian relationship will be imperative in the formulation of new policy; therefore, the next chapter addresses this issue in order to lay a foundation for further policy considerations in later chapters.

Part III: Theoretical Models & Case Study: Examination of the Effects of BMD on US-Russian Relations

Chapter Overview

Having thus far provided the history of Presidential BMD postures, determined the EPAA's technical feasibility, and appraised the threat of the EPAA to Russian strategic deterrence, this chapter treats the acknowledged paucity of theoretical and empirical examination in the extant body of literature regarding BMD. The first section defines and applies two complementary theoretical models--the Rational Deterrence and Spiral models--to the case of EPAA and BMD at large in order to interpret the current state of US-Russian relations and to predict the impacts of these anti-ballistic missile technologies. The subsequent section presents an empirical case study, which uses the Political Affinity Index derived from *United Nations General Assembly Roll-Call Voting Data* and the annual budget of the Ballistic Missile Agency to statistically analyze the political effects of BMD. Furthermore, the case study implements a mixture of qualitative and quantitative techniques to evaluate the following hypothesis: When a US Presidential administration's level of support for BMD development increases, Russia's political affinity with the US decreases accordingly.

From Brinkmanship to Bargaining: Theoretical Models of BMD & US-Russian Relations

In the post-World War II era two main theories, the Rational Deterrence and Spiral models, have dominated the study of interstate conflict. As the more prevalent of the two theoretical models, rational deterrence theory played a preeminent role in the formation of policy during the Cold War, inspiring the doctrines of Soviet containment and Mutually Assured Destruction; furthermore, deterrence remains a defining feature of US-Russian relations

inasmuch as the New START Treaty simultaneously reduces and sustains parity between US and Russian nuclear arsenals. However, the Security Dilemma or Spiral model more clearly explains the impending shift in US-Russian relations due to BMD's prospective capability to undermine the traditional deterrence paradigm at the core of international norms on nuclear weapons behavior. Therefore, this section argues that forthcoming negotiations and efforts toward NATO-Russian cooperation pertaining to BMD must ease the transition from the deterrence paradigm to a new framework of strategic cooperation; otherwise, the Spiral model indicates that--as a byproduct of BMD--the US and Russia will compete for progressively higher levels of defense, will unintentionally become hostile toward one another, and, finally, will initiate and reciprocate armed conflict as each state struggles to guarantee its security in an unstable relationship.

The Rational-Deterrence theory, essentially a zero-sum game of state choice, makes "the central argument that great dangers arise if an aggressor believes that the status quo powers are weak in capability or resolve" (Jervis, 1976, p. 58); in other words, states will endeavor to exploit the weakness of others, whether merely perceived or real, in pursuit of greater power and access to resources. By this reasoning, the core of deterrence theory is, according to Patrick Morgan, "the threat to use force in response as a way of preventing the first use of force by someone else" (Morgan, 1983). From this fundamental definition, deterrence features four subcategories: direct deterrence, a state's prevention of an attack on itself; extended deterrence, a state's prevention of an attack on an ally; immediate deterrence, prevention of an imminent threat; and general deterrence, circumstances in which opposing states maintain forces with no real intention of issuing a first-strike--much like the current US-Russian relationship (Huth, 1999). Although primarily an instrument used by major powers to defend the status quo, deterrence has seen widespread adoption in policy application throughout the world.

Implicit within the deterrence theory, the maintenance of equilibrium in strategic forces is the impetus for preventing conflict because it allows states to ensure that an opposing state will not launch a first-strike due to the equally destructive consequences (i.e., Mutually Assured Destruction). This tenet of the model highlights its underlying rational-choice assumptions; however, in the view of policy-makers, radical rogue states whose religious and nationalist convictions press them to pursue nuclear weapons stretch these implications to their limits, thereby validating the implementation of BMD technologies to prevent a nuclear strike in the case of a deterrence failure. Although a deterrence failure in which a state, such as Iran or North Korea, would irrationally launch a first-strike in the face of a threat of massive retaliation is highly improbable, policy-makers stress the high stakes of this negligible possibility as a motivator for BMD. Therefore, BMD represents a more proactive exertion of a state's deterrence in that it eliminates the threat of a nuclear attack from a perceivably unpredictable state, which is an effective strategy for managing emerging rogue regimes and, likewise, for limiting proliferation in other states seeking a deterrent in response to rogue nuclear acquisition.

Despite BMD deployment being an arguably effective policy in regards to the asymmetrical and atypical model of deterrence in the case of states in pursuit of nuclear weapons, the same does not hold true in relations between major powers, i.e., states already possessing nuclear weapon stockpiles. In the traditional models of deterrence derived from Game Theory and the Prisoner's Dilemma in particular the result of two states' interactions are as follows: a) both refrain from action and uphold the status quo, b) one state acts and gains a strategic, first-strike advantage over the other, or c) both act and thereby cause conflict along the lines of Mutually Assured Destruction; however, the introduction of BMD fundamentally destabilizes this model of relations, eliminates the execution and effects of one state's action,

and, as a result, allows the BMD-capable state to gain strategic advantage without recourse--removing option c and relegating option b as the standard model outcome (Kilgour & Zagare, 1991, p. 308-9). Since deterrence is a prevalent equalizing force in contemporary geopolitics, the adverse post-deterrence status quo brought about by BMD would most likely compel an affected state to pursue courses of action to limit or nullify the opposition's strategic advantage. Presupposing that BMD collaboration between the states would not be possible, this state would be presented with four approaches to subverting the post-deterrence status quo: 1) to enact a policy of appeasement toward the BMD-capable state to dissuade the unchecked exploitation of its advantage, 2) to incapacitate the BMD system, 3) to develop the weaponry necessary to overwhelm the BMD system, thus recovering the state's deterrent; and/or 4) to deploy its own BMD system.

In the above circumstances of a BMD system eliminating a state's nuclear deterrent, the ensuing scenario would be analogous to a Security Dilemma in which one state's operations for the express purpose of defending its national security would elicit an inadvertent intensification of hostilities and subsequent countermeasures from other states. While Deterrence theory posits the role of rationality in the pursuit of greater power and more resources, the Security Dilemma theory underscores the typical misperception of other states' efforts to increase their security as aggressive in part due to the anarchic, Hobbesian state of the international system. John Herz elegantly summarized this psychological and foundational quandary inherent in international politics:

> A structural notion in which the self-help attempts of states to look after their security needs tend, regardless of intention, to lead to rising insecurity for others as each interprets its own measures as defensive and measures of others as potentially threatening. (Herz, 1950, p. 157)

According to this theory, all states share a common interest in collective security; however, in the absence of a sovereign at the global level of organization, each state must be wary of the repercussions of failed strategic partnerships and, therefore, must rely solely on its own strength for its security.

From this vantage point the outbreak of interstate conflict is generally neither desired nor intended by the states involved, an idea which contradicts the proclivity of states to capitalize on weakness as described in deterrence theory. The Security Dilemma theory argues that the instinctive drive of self-preservation motivates state competition for power. Regardless of the assumed universal interest in preserving peace, even a state favoring the status quo may initiate conflict when it perceives the sole alternative to be an incoming attack from an adversary; moreover, if the advantage of a first-strike is known to both states, inconsequential confrontations are likely to escalate to preemptive war (Jervis, 1976, p. 67). By this token, states engage in vicious cycles of defensive build-up (e.g., arms races) and in the process haphazardly generate animosity among themselves, which then precipitates the onset of armed conflict and war as each state seeks to gain the preemptive first-strike advantage when conflict is imminent.

The Security Dilemma theory uses a Prisoner's Dilemma conceptual model virtually identical to the aforementioned Deterrence Game, although with a focus on long-term interstate interactions instead of the short-term onset of interstate conflict. In keeping with the Security Dilemma Game, this model identifies three outcomes in state relations: 1) the first choice of either state (thus, the least preferred choice of the other) is an exploitative relationship in which it benefits from the cooperation of the other state without committing any resources, 2) the second choice of both states is mutual cooperation and its associated collective security, and 3) the third choice of both states is noncooperation. If the game is only played once (as is the case in

deterrence theory), the rational strategy is to refuse to cooperate in hopes of benefitting at no cost; however, if the game is repeated as is the case in the span of international politics, behavior may be punished or rewarded in later iterations of the strategic decision-making process, thus making mutual cooperation more likely. Furthermore, in "Cooperation Under the Security Dilemma" Jervis argues that there are three factors that augment the probability of producing an outcome of mutual cooperation: 1) increased benefits of mutual cooperation and/or decreased costs to a cooperating state in the event of the other state defecting; 2) decreased benefit of taking advantage of another state and/or increased costs of noncooperation; and 3) increased expectations of future cooperation on each side (Jervis, 1978, p. 171).

Applying the Spiral model to the BMD context, Iranian pursuit of nuclear weapons capabilities would simply embody its undertaking to ensure its national security within an inauspicious regional political climate, which is characterized by constantly increasing US involvement and a nuclear-capable Israeli rival. However, as Jervis states, "When states seek the ability to defend themselves, they get too much and too little--too much because they gain the ability to carry out aggression; too little because others, being menaced, will increase their own arms and so reduce the first state's security" (Jervis, 1976, p. 64). This particular premise informs the predicament in which Iran finds itself: In an effort to bolster its defenses and achieve some conceivable form of parity with its strategic rival, Israel, Iran has engendered a perception among Western powers that it is a militantly revisionist regime. Based on this perception of Iran, the US naturally assumed the worst of Iran's intentions and deployed BMD in response to an anticipated menace to its national interests in the region, which may actually constitute a singularly defense-oriented initiative on the part of Iran.

The spiral of defense escalation extends from Iran to adjacent states, heightening tensions in the Middle East and catalyzing NATO's Active Layered Theater BMD program as well as its US counterpart, the EPAA. As a consequence, Russia in turn calls NATO's motives into question and, after initially pursuing cooperation on BMD to no avail, formulates reactionary measures to BMD in Europe until such a time as cooperation can be formalized. The Security Dilemma theory logically postulates that each state would maximize its strategic advantage through mutual cooperation toward collective security; however, mutual cooperation is only an outcome in the US-European case, while the other two cases resulted in noncooperation primarily because the US and Iran lack formal diplomatic relations and the push for NATO-Russian BMD integration did not gain sufficient momentum on the NATO side of negotiations. Concurrently, these representative samples correspond to the three archetypal outcomes of the Security Dilemma Game derived from the Prisoner's Dilemma.

While the US-European relationship exemplifies successful collective security and the US-Iran case represents a near absence of diplomatic relations, US-Russian relations have resulted in a quasi-exploitative outcome of the Security Dilemma Game. On the one hand, in this outcome the US holds the upper hand with EPAA, a situation in which Russian integration is negligible or at best only slightly beneficial to US-NATO security; on the other hand, an outright failure of US-Russian relations in this area could negatively impact US arms control and nonproliferation interests on a global scale, perhaps reigniting an arms race. As the EPAA expands and encroaches upon a region historically in its sphere of influence, Russia is hard pressed to address the BMD issue, whether via collaborative means or a last resort use of force aimed at incapacitating BMD and ensuring the efficacy of the Russian nuclear deterrent. Russia has indicated that it would prefer to cooperate with NATO toward collective security, and a

similar call for Russian security integration was echoed by NATO but to no avail. Russia's projected countermeasures to the advanced stages of BMD in Poland and Romania accurately parallels the reactions of a vulnerable state actor as anticipated in the Security Dilemma.

Since BMD will eventually undermine the efficacy of the Russian deterrent, an essentially defensive US operation has inspired the Russian government to propose a belligerent course of action that would reestablish the bilateral equilibrium. Indeed, Russia has exhibited behavior indicative of the Security Dilemma: 1) as is to be expected, Russia was not inclined to engage in unnecessarily costly conflict and initially pursued a cooperative approach to solving the BMD dispute, 2) after progress toward cooperation was halted, the US and Russia unwittingly escalated tensions between themselves and began a minor defensive buildup; and 3) Russia reserved the right to withdraw from its arms control commitments, to stockpile nuclear weapons in order to safeguard its deterrent, and, if deemed necessary, to launch a first-strike against the BMD installations in Eastern Europe. Consistent with the Security Dilemma, BMD systems possess dual offensive and defensive functionality, a characteristic common to most weaponry, which represents a key element in misconstruing others' genuine intentions and, thereby, perpetuating superfluous development of more and more sophisticated defenses. If improperly managed, the US and Russia, burdened by the cyclical and paradoxical contest to trump the opposing state in defensive aptitude, would continue to expand their armaments and yet continuously diminish their actual security--similar to the historical conditions underlying the Cold War Security Dilemma.

In conclusion, technological advancement in the EPAA system may in the course of time come to undermine the utility of deterrence-based equilibria, thus triggering a Security Dilemma in the US-Russian relationship. Such a relationship would likely consist of a belabored and

methodical process of steadily innovating military technologies to retain parity in conventional and nuclear forces and, after the turning point at which interstate tensions had reached an apex, would culminate in a pre-emptive attack from the inferior state seeking an advantage (i.e., Russia in this instance). In a worst-case scenario this breach in deterrence could precipitate another arms race and ultimately warfare, although highly improbable. Therefore, the US should aim to capitalize on the Obama administration's revitalized rapport with Russia to negotiate and, when possible, to enact treaties and policies that would deliberately supplant the antiquated Mutually Assured Destruction deterrence model with collective security; moreover, a diplomatic realignment would prove effective in resolving the issue of BMD as well as circumventing the slippery slope of a Security Dilemma.

Case Study: US Support for BMD & the Political Affinity Index

A. Research Methodology & Design

This case study will empirically evaluate the following hypothesis: When a US Presidential administration's level of support for BMD development increases, Russia's political affinity with the US decreases accordingly. The concept of presidential support for BMD--the independent variable--is operationalized as the degree to which an administration is active in formulating BMD policies, an administration's resolve in pursuing BMD, and, quantitatively, an administration's allocation of resources to BMD in the defense budget. The concept of correspondence between US and Russian policy preferences--the dependent variable--is operationalized as the degree of concurrence in their voting behavior in international bodies, specifically the UN General Assembly in this case. In order to measure these variables, UN General Assembly Roll-Call Voting data assembled by Strezhnev and Voeten is used to generate

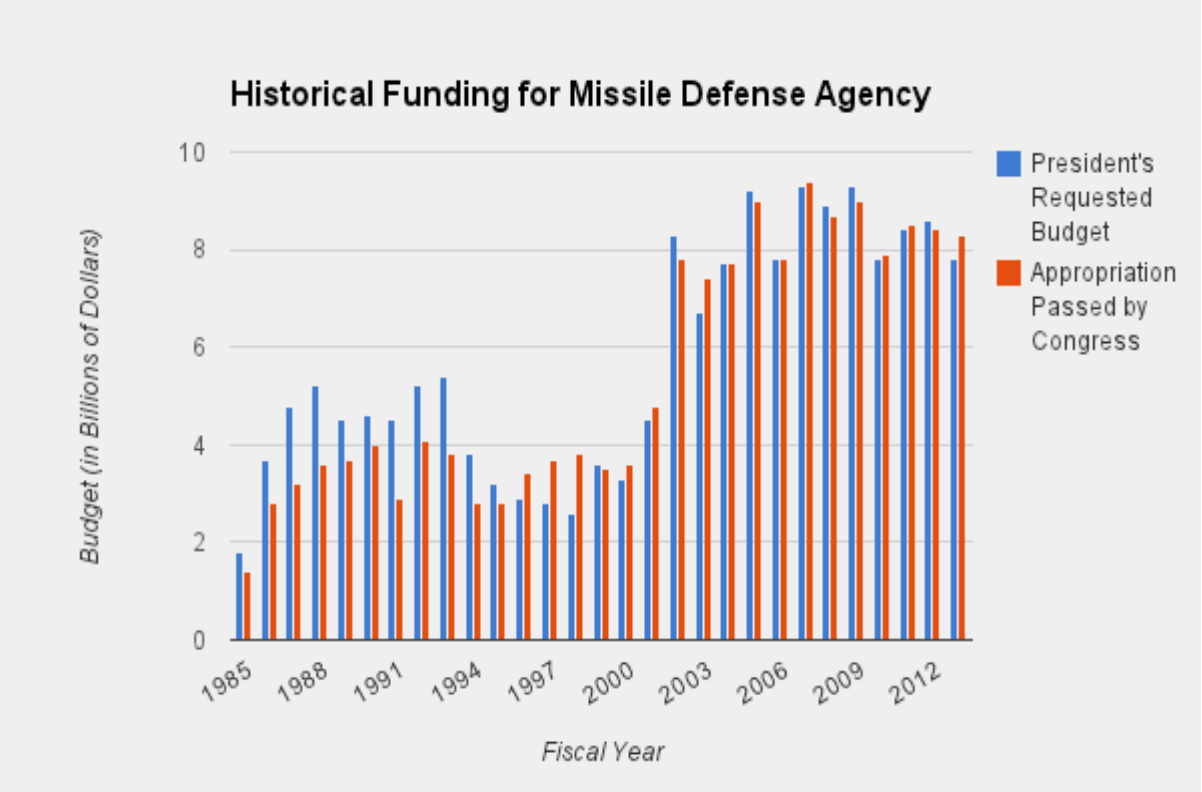
a Political Affinity Index, which scores the similarity of US and Russian voting patterns during the period from 1980 to 2011.

This case study incorporates both qualitative and quantitative methods in evaluating the hypothesis. First, a chronology of BMD posture, which both builds upon the historical background introduced in earlier chapters and includes a review of the BMD budget, is applied to the Affinity Index in order to determine if BMD posture can explain the variation in voting behaviors sufficiently enough to warrant sustaining the hypothesis. After the qualitative evaluation, follows a statistical analysis, which uses linear regression analysis to measure the relationship between the variables and provide an empirical evaluation of the hypothesis.

B. Qualitative Analysis

This case study measures the interrelatedness of Russian and US voting behaviors with the Political Affinity Index, also known as the Affinity of Nations index by Erik Gartzke, derived from the UN General Assembly Roll-Call Voting data set (Strezhnev & Voeten, 2013). This particular dyadic Affinity Index aggregates some three thousand instances of UN resolution voting from 1980 to 2011 and assigns a score between -1 (least similar voting) and 1 (most similar voting) per annum. Encompassing a breadth of both positive and negative episodes leading up to the 21st century (e.g., the advent of BMD under Reagan, the fall of the Soviet Union, etc.), the Affinity Index provides a straightforward description of the typically mercurial US-Russian relationship. The data (the following graph) demonstrate these macroscopic trends: The escalation of hostilities under Reagan, the *rapprochement* of the post-Soviet era, the slow divergence of US-Russian relations leading up to serious disagreements during the George W. Bush presidency, the low of relations in light of the 2008 Russian invasion of Georgia, and the "Reset" of relations under the Obama administration.

Accordingly, the Affinity Index is generally valid in describing trends in the US-Russian relationship through assessment of voting alignment. In order to examine the effects of BMD development in particular, the data will be divided according to presidential administration and compared to a qualitative assessment of each time period's BMD and relevant policy developments. The affinity data will also be compared to the historical record of the Missile Defense Agency budget for the available years of 1985 to 2013, a comparison to be further expanded upon in the quantitative analysis. The BMD budget data include both the president's requested budget and the actual funding appropriation passed by Congress for each year (the following graph).



Reagan Administration (1981-1989): The Political Affinity scores for this period indicates a fluctuation from two peaks (-0.66 in 1982 and 1986) to two lows (-0.75 in 1983-4 and -0.81 in 1988-9). During this period the BMD funding record indicates a rising trend for both the president's request and the appropriated funding, ranging from 1.8 billion to 4.5 billion and 1.4 billion to 3.7 billion, respectively. The first affinity low corresponds to the announcement of the Strategic Defense Initiative in 1983 and its initial testing in 1984, while the second corresponds to the collapse of US-USSR arms control negotiations at the Reykjavik summit in late 1986 due to severe disagreements over the SDI program. Moreover, the Soviet Union had expressed concern for SDI's threat to Soviet physical security since its creation, peaking at the 1986 conference, and continuing on after the US confirmed that the new space-based Brilliant Pebbles

system could be ready in five years in 1989. As such, the Reagan administration's aggressive pursuit of BMD during this period appears to correlate with the US-Russian Political Affinity Index.

First Bush Administration (1989-1993): The Political Affinity data for this period show an unprecedented spike in US-Russian affinity from the low of -0.81 in 1989 to .36 in 1993. The BMD funding record indicates that the administration's requests were fairly static, while the actual appropriated funding ranged from 2.9 billion in 1991 to 4.1 billion in the following year. As the period in which the Soviet Union dissolved, the Bush administration orchestrated the ratification of the START I Treaty in 1991 and held a markedly less aggressive BMD posture. Indeed, few advancements were made in BMD outside of a reorientation to the Global Protection Against Limited Strikes system and the passing of the "National Defense Authorization Act for Fiscal Years 1992 and 1993," which called for BMD deployment in the mid-1990s, although later reports would designate 1997 as the earliest feasible deployment date. Thus, in light of the general *rapprochement* after the dissolution of the USSR and the Bush administration's BMD policies, the Political Affinity Index correctly corresponds to the period's US-Russian relationship.

Clinton Administration (1993-2001): Peaking in 1994, the Affinity Index marks a steady negative trend from 0.42 to -.5 in 2001. This period's budget data demonstrate a contraction of presidential budgetary requests (5.4 billion in 1993 to 2.6 billion in 1998) followed by a moderate increase in the later years of the administration (3.6 billion in 1999 to 4.5 billion in 2001), while appropriations remain regular (averaging around 3.5 billion) throughout the Clinton

administration. This administration redesigned the SDI program to become the BMD Organization in late 1993 and reoriented the program toward theater BMD, a policy shift which explains the initial slump in affinity in the following years. Indeed, the US made much progress on theater BMD technology until 1997, when the policy emphasis was again placed on National Missile Defense. In 1999 Congress passed the "National Missile Defense Act," which committed the US to NMD deployment as soon as technology permitted. In the subsequent year the US and Russia ratified START II; however, President Putin pledged to withdraw from all START treaties if the US pressed to permit NMD under the ABM Treaty. Considering allies' reluctance and Putin's refusal to modify the ABM Treaty to allow it, Clinton decided not to authorize NMD deployment, instead deferring to his successor the decision. Therefore, although the BMD budget under the Clinton administration seems too low to elicit such an affinity response from Russia, the active policy-making process and technological advancements in regards to US BMD and NMD during this time period account for the gradual decline in US-Russian affinity.

Second Bush Administration (2001-2009): The Political Affinity data for the second Bush administration indicates a negative affinity trajectory to the lowest point recorded in the data during the last full year of the Bush administration in 2008. Accordingly, both presidentially requested and congressionally appropriated funding for BMD rose substantially, peaking at a 9.3 billion request in both 2007 and 2009 and a 9.4 billion appropriation in 2007. Under the Bush administration the BMD Organization (formerly known as SDI) was restructured to form the Missile Defense Agency, allowing for more bureaucratic freedom. In 2001 Bush announced US withdrawal from the ABM Treaty, which was realized later in 2002, which explains the further dip in affinity scores in these two years from 2000, the last full year of the Clinton

administration. Unrestrained by the stipulations of the ABM Treaty, the Bush administration bolstered BMD spending (the highest of any administration) and testing, and in 2004 the US deployed BMD systems in Alaska, which marks a particularly troubling year in the affinity data with a drop from -0.49 to -0.72. In 2007 the administration put forth a plan to deploy BMD components in Europe to defend US interests from rogue regimes, which, combined with disputes over Russia's invasion of Georgia, represent the resulting year's lowest affinity value of -0.85. As the most aggressive and well-funded administration in pursuit of BMD, Russian concern is clearly reflected in the Political Affinity Index, which plots a more and more divergent course into the doldrums of US-Russian relations.

Obama Administration (2009-2013): Accounting only for 2009-2011, the Political Affinity Index exhibits a substantial increase during Obama's first year in office (-0.85 in 2008 to -0.62 in 2009), a slightly negative reversal for the following year, and in 2011 an affinity score on par with those of the early Bush administration. BMD funding data indicate that the Obama administration's requested and appropriated budgets are both typically about 8.5 billion dollars, a reduction in spending from the previous administration. Taking over during one of the lowest points in the history of US-Russian relations, the Obama administration endeavored to engage Russia in *rapprochement*, and in 2009 the US and Russia "reset" their relationship. In 2009 the administration also announced redesign of the scheme for BMD in Europe with the intention to install the first phase of the EPAA in 2011, and the following year, 2010, the US and Russia ratified the New START Treaty. Within the context of renewed US-Russian arms control endeavors and a cut in BMD spending, the Political Affinity Index reflects an improving US-Russian relationship.

C. Quantitative Analysis

Having qualitatively argued the case for an association between the variables, this statistical analysis will empirically verify the degree to which the independent and dependent variables co-vary. Using the data from the previous section, the overlapping data (years 1985 to 2011) allows for a linear regression analysis to determine the exact correlation and covariance of the two measures, the historical BMD budget and the US-Russian Political Affinity Index. The formula for the regression model is: $Y= a + bX + e$, where a is the Y-intercept, b is the regression coefficient (or the slope of variable X), and e is the error or disturbance term. This analysis uses the formula above and calculations from the data set to determine if the null hypothesis (b=0 or no relationship) may be rejected or if the research hypothesis (b<0 or negative correlation) may be supported.

In order to calculate $Y= a + bX + e$, one must first compute the sum of products and sums of squares, notated as SP, SS_x, and SS_y.

$SP= \Sigma XY - NXY$	$SS_x= \Sigma X^2 - NX\ 2$	$SS_y= \Sigma Y^2 - NY^2$
$=-72.43 - (27)(5.23)(-0.44)$	$=902.68 - (27)(5.23)^2$	$=8.67 - (27)(-0.44)^2$
$SP= -10.41$	$SS_x= 165.15$	$SS_y= 8.477$

Thus, $b= \frac{SP}{SS_x} = -0.06$ and $a=Y- bX = -0.11$. Putting these values in the formula, the regression line is represented as Y= -0.11 + (-0.06)X. These values are also used to measure the correlation (r) as well as the coefficients of determination and non-determination.

$r= \frac{SP}{\sqrt{SS_x SS_y}}$ Therefore, $r^2= 0.08$ or 8%

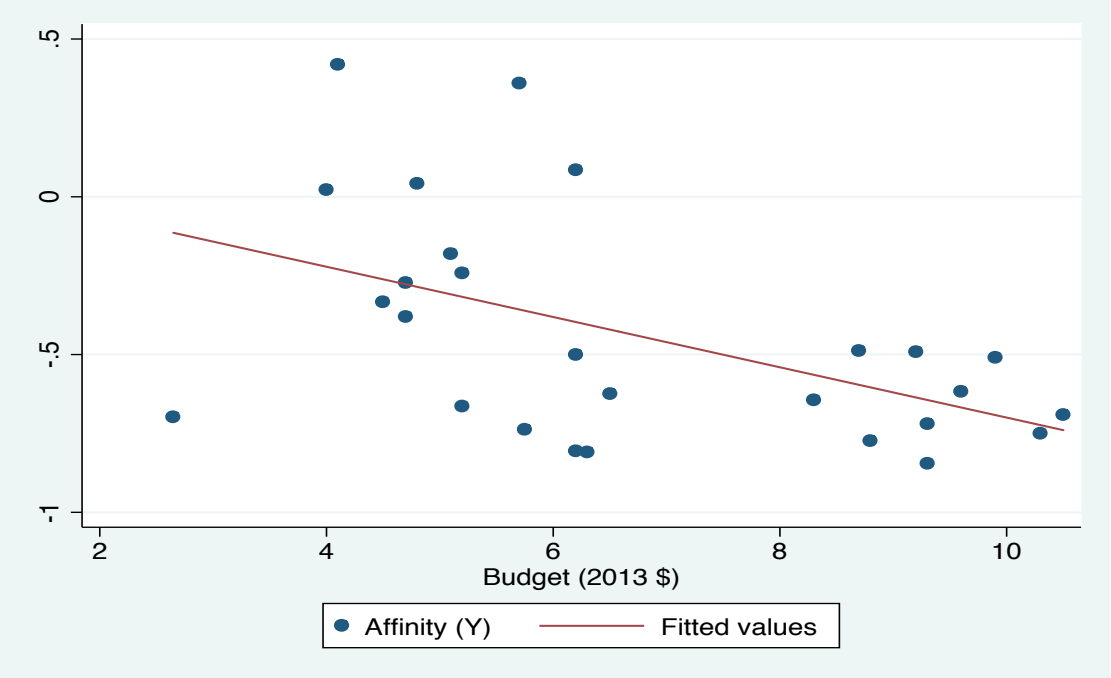
$r= \frac{-10.41}{\sqrt{(165.15)(8.48)}} = -0.278$ $1-r^2= 1 - 0.08 = .92$ or 92%

As demonstrated above, the budget data for the Missile Defense Agency has a low yet statistically significant negative correlation with the Political Affinity Index. However, the changes in budget explain only 8% of the variance between the two variables, meaning 92% of the change requires alternative explanations.

Table: BMD Support-Political Affinity Regression Calculations

Affinity (Y)	Coefficient	Standard Error	*t* value	95% Conf. Int.
BMD Budget (USD 2013)	-0.08	0.03	-2.91	-0.14 / -0.02
Constant	0.1	0.19	0.50	-0.3 / -0.5

The statistical analysis yields the data provided in the table above. According to the statistical analysis, the relationship between the variables indicates that in general when the BMD budget increases by a single unit (i.e., 1 billion constant dollars), the political affinity score correspondingly decreases by -0.08. Therefore, the regression analysis supports a minor yet statistically relevant negative relationship between the two variables, as is graphically represented in the diagram below:



D. Conclusions & Alternative Explanations

Whereas the broader operationalizations of the variables in the qualitative analysis offer a fuller and more favorable explanation of the correlation between the variables, the statistical analysis merely examines the co-variation of the BMD budget and the US-Russian Political Affinity Index. The qualitative analysis suggests that there is indeed a statistically significant negative correlation between the two broader variables, support for BMD and US-Russian affinity. The regression analysis rules out the possibility of a strictly causative relationship between the two variables, but a minor negative correlation is presented through the data analysis.

The above statistical analysis is designed to contribute a rudimentary measure of the relationship between BMD development and the US-Russian relationship; however, since it is a simplistic bivariate model, the analysis allows for other possible alternative explanations of the variation in the Political Affinity Index. First and foremost, there remain a variety of variables

outside of BMD budget and policy, which need to be inserted into the analysis in order to fully understand the variation in US-Russian political affinity. Variables that could pose relevant descriptions of this measure range from economic and trade relations to the outbreak of conflict involving either of the states, which could strain the bilateral relationship (e.g., the Iraq and Afghanistan wars). Moreover, the variation observed in the political affinity between the two states could be accounted for by US reactions to rhetoric primarily intended for Russian domestic audiences and not the international community.

This last alternative explanation presents a particularly compelling argument in the case of BMD's impact on the US-Russian relationship. As frequently occurs in interstate relations, Russian leadership may deliver blustering rhetoric in their public addresses strictly as a means to rouse domestic approval and redirect attention from troubles at home to a common enemy, while in reality the threats issued for domestic purposes hold little substantive relevance to the two states' bilateral relationship. Indeed, such interstate misunderstandings between leaders who take staunch positions on international issues to garner domestic political support are frequently observed in more authoritarian states; for example, the incendiary rhetoric coming from the rogue states of Iran and North Korea lacks the credibility to sustain the threats and are actually attempts to appear strong in the face of an international menace. Therefore, the variation in US-Russian political affinity could fall within the confines of this framework, representing a misinterpretation of the intended audience of Medvedev's plan for strategic reaction to the EPAA or Putin's deflection attention away from political problems within Russia and toward a distant and long-time scapegoat, the United States.

Part IV: Policy Implications of BMD & Policy Recommendations

Chapter Overview

Having investigated the theoretical and empirical aspects of BMD in the previous chapter, this part of the thesis expounds upon the legal and policy contexts of BMD, specifically the EPAA system, in order to inform the policy analysis and recommendations in later sections. The macroscopic implications and ramifications of BMD are examined within key cases of US-Russian policy (e.g., the ABM Treaty, the New START Treaty, etc.), after which follows an analysis of previously proposed policy. Policy alternatives are then discussed, and, finally, the chapter concludes with policy recommendations, which prescribe an ideal course of action for the optimal achievement of US objectives pursuant to favorable US-Russian relations and mutual cooperation.

Policy Implications of BMD

A. The Anti-Ballistic Missile Treaty & US Withdrawal

A product of the Mutually Assured Destruction policy's prominence in US-Russian relations during the preceding decades, the Anti-Ballistic Missile Treaty of 1972 was designed to eliminate the likelihood of defensive systems further complicating the strategic balance. Preempting an offensive escalation on each side to counteract the opposition's defenses (e.g., Multiple Independently targetable Reentry Vehicle or MIRV systems), the US and USSR asserted in the ABM Treaty that "effective measures to limit anti-ballistic missile systems would be a substantial factor in curbing the race in strategic offensive arms" ("Treaty between US and USSR," 1972). The ABM Treaty prohibited the development, testing, and deployment of ABM

systems except for one protecting the capital city and one protecting ICBM silo launchers. Although the treaty merely stymied ABM development without fully halting it, the ABM Treaty stood as a cornerstone for future US-Soviet arms control negotiation.

However, in the aftermath of the 9/11 terrorist attacks in 2001, the Bush administration unilaterally withdrew from the treaty, citing the necessity for defense from potential nuclear attack launched by rogue regimes or terrorist groups as well as the shift away from MAD in US-Russian relations. Despite expectations of allies' outrage and Russian countermeasures, President Putin only went so far as to deem the action a "mistake" inconsequential to Russian security; indeed, in the words of retired Foreign Service Officer Avis Bohlen, "And so strategic arms control died not with a bang, but with a whimper" (Bohlen, 2003, p. 8). Bohlen goes on to outline the proceedings of the Strategic Offensive Reductions Treaty (SORT)--the price of ABM withdrawal--and argues that the Bush administration may have been premature in rethinking the real relevance and "totemic value" of the ABM Treaty (Bohlen, 2003, p. 30). Whereas international response was negligible, arms control proponents' outlook for post-withdrawal cooperation was dismal, suggesting that SORT would be the last arms control treaty of its kind.

Although the arms control regime has endured and even advanced with the succession of New START, earlier apprehension of a breakdown in US-Russian negotiations appears to be gaining credence. The dissolution of the ABM Treaty marked the development and deployment of the EPAA: On the one hand, a purely defensive strategy from the perspective on the US and NATO but, on the other hand, an offensive against deterrence that may come to encircle and consequently incapacitate Russia from the Russian perspective. As anticipated after US withdrawal from the ABM Treaty, Russia has forewarned NATO that proposed deployments in Poland and Romania would *de jure* warrant Russian withdrawal from the START line of treaties

among other reactionary measures. Therefore, Russia exhorts the US to affirm that the EPAA does not target Russia in legally binding guarantee before the full deployment of the system and the expiration of the New START in 2021.

Such exhortation intimates the need for a "New ABM Treaty" to coincide with the New START Treaty. At once less stringent and more consistent with contemporary US-Russian relations than its precursor, a New ABM Treaty could effectively reconcile US interests in Europe with Russia's strategic security concerns. In keeping with the renewed *esprit de corps* in US-Russian relations, a New ABM Treaty could contribute to the shift in the foundation of the strategic relationship from deterrence to mutual cooperation in regards to arms control, nonproliferation, and collective security. Instead, the US has thus far refused to negotiate any restrictions on BMD development or deployment and shows no sign of making concessions on the issue in the future.

B. The "Reset" of US-Russian Relations & the New START

Lauded as one of the key foreign policy achievements of the Obama administration's first term, the *rapprochement* or "Reset" with Russia and the subsequent New START Treaty marked a critical juncture in US-Russian relations, which opened new avenues for cooperation. Reaching *detente* after the increased tensions under the Bush administration, the New START Treaty replaced the 1991 START treaty that was due to expire in 2009 and further reduced strategic warhead arsenals by 30 percent. However, even after the reductions take full effect in 2018, "the US and Russia will each maintain some 5,000 nuclear weapons, a level that makes little sense 20 years after the end of the Cold War" (Pifer, 2013). Perceived as a crowning foreign policy achievement for Obama's first term, New START represents a feeble, first step on the long road to bilateral and eventually multilateral disarmament.

Having exhausted its political capital in ratifying New START, the Obama administration has resorted to reaffirming its intent to push for US-Russian cooperation on arms control with little follow-through on the issue. The logical next step in the arms control agenda would be to press ratification of the Comprehensive Nuclear Test Ban Treaty (CTBT) to assert US dedication to arms control; however, due to a lack of support from conservatives in Congress in light of persistent threats from Iran and North Korea, any progress on the CTBT seems unlikely until a 2015 Review Conference (Horovitz, 2011, p. 87 & 95). The overall fervor of the arms control movement under the Obama administration has significantly dissipated since the ecstatic highs of 2010, and, as a consequence of Republican resurgence in Congress, the Obama administration has become parsimonious in approaching arms control with Russia. Taking into account the dismal state of US-Russian affairs and arms control in the aftermath of the "Reset," New START Treaty has proven to be a premature attempt to promote arms control without first addressing the latent complications in the US-Russian relationship.

Indeed, the confluence of factors surrounding this "False START" has in many ways vindicated the Russian strategic community's assumption that the US intends to use BMD systems as a device for politically pressuring Russia. Upon acceding to the presidency in 2009, President Obama acted "to modify the Bush administration's BMD plans in Central Europe, opening the way for New START and easing Russian concerns" (Arbatov, 2011, p. 1-2). The "Reset" of US-Russian relations in 2009, a product of a shift in BMD policy, led to the negotiations for New START in 2010 and the treaty's entrance into force in 2011. Likewise in 2011, the Obama administration outlined the long-term schedule of the EPAA and deployed the first phase; thus, Russian military strategists expressed their concern, stating, "If US and NATO BMD consists of 1,500-2,000 missile interceptors, part of which may be deployed near [Russian]

borders, while Russia fulfills its obligations under the New START (700 delivery vehicles, 1,550 nuclear warheads) the US may be capable of preventing the threat of a ballistic missile strike against the territories of the US and NATO" (Gumenuk, Khramychev, & Valshonok, 2010, p. 60).

In late 2011 and into 2012 Russian concern for EPAA's threat to its deterrence reached a fever pitch, pushing BMD to the front of the US-Russian policy agenda. In November of 2011 President Dmitry Medvedev declared that there was still time to reach an agreement on BMD; however, he went on to delineate Russia's contingency plan in the event that efforts to negotiate an agreement failed. Medvedev outlined his five-step response to the EPAA deployments, punctuated with a caveat regarding arms control: 1) the missile attack early warning radar station in Kaliningrad was set to combat alert, 2) Russia reinforced measures to protect its strategic nuclear weapons, 3) previously commissioned strategic missiles were equipped with BMD penetration systems and more sophisticated warheads, 4) military measures to incapacitate BMD guidance systems were ordered, 5) if aforementioned measures were insufficient, modern weapons systems were to be deployed to ensure Russia's capability to destroy any element of the EPAA, and, finally, 6) if the situation continued to be unfavorable, Russia reserved the right to discontinue disarmament and legally withdraw from the New START Treaty (Medvedev, 2011).

Offering an ultimatum between cooperation and preemptive strike, Medvedev's address marks the EPAA as one of the most contentious issues in contemporary US-Russian relations. Whether Medvedev's threats had any legitimacy, comprised an attempt to coerce the US into action, or were meant to rally domestic support remains unclear. However, if the US and Russia are ever to pursue another disarmament treaty, disputes over BMD must be resolved. As the New START and EPAA deployment both officially conclude in 2021, the US must recognize the

possibility of early Russian withdrawal from pivotal, bilateral compacts and, moreover, must implement policy, which will address Russian concerns and prevent a breakdown of US-Russian relations.

Analysis of Proposed Policy & Policy Recommendations

First and foremost, in order to analyze and later formulate policy, it is essential to distinguish the fundamental impetus of each state, namely their national interests. Indeed, in 2011 the Task Force on Russia and US National Interests published a report, which thoroughly and authoritatively elucidates the US-Russian relationship, each state's strategic objectives, and future courses of action therein ("Russia & US interests," 2011). The report identifies five vital US interests:

- Restraining the proliferation of nuclear capabilities and securing existing nuclear weapons and materials;
- Sustaining US leadership in maintaining peaceful and stable balances of power in the key regions of Europe and Asia;
- Defending the American Homeland from future terrorist attack;
- Ensuring energy security; and,
- Bolstering the international economy. (p. 8-9)

In addition, the Task Force compares US and Russian national interests in order to deduce the policy objectives of utmost importance to the Russian political elite:

- Maintaining Russia's nuclear deterrent to guarantee sovereignty and great-power status;
- Projecting Russian influence in the Post-Soviet states to realize unrivaled dominance in the region;
- Defending Russia from terrorist and/or nuclear attack;

- Perpetuating energy exports and resulting income; and,
- Protecting both the extant political system and the underlying economic interests of elites' political-business alliances. (p. 17)

As evinced through the juxtaposition of each state's core concerns, US and Russian interests clash over the leadership role in the key regions of Europe and Asia desired by the US as well as Russia's similarly lingering propensity toward imperialism--both remnants of the Cold War to a degree. The expansion of US assets and proposed EPAA deployments in Central and Eastern Europe has begun to challenge Russia's historical sphere of influence, a clear threat to its geopolitical interests. Moreover, BMD poses a threat to Russia's nuclear deterrent, a status symbol that weighs heavily on Russian national identity and a national interest seemingly antithetical to the EPAA. Therefore, effective future policy on the BMD issue will build upon US-Russian mutual interests, while also reconciling the two aforementioned salient disputes between the strategic competitors.

Pertaining to EPAA and BMD policy in particular, the Strike Force on Russia and US National Interests prescribes an ambitious course of action to not only make progress on this contentious issue but to emphasize a potential US-Russian strategic partnership ("Russia & US Interests," 2011, p. 25). Although the US and NATO is encouraged to proceed with the EPAA and global BMD initiatives as scheduled, the Strike Force suggests an alternative means of reconciling BMD with Russian national interest in deterrence: the US should engage Russia in discussing a realignment of US-Russian relations away from the antiquated notion of deterrence and toward "a new strategic stability concept." The US should then initiate realistic negotiations for a NATO-Russian agreement that legally guarantees that the signatory parties "have no intention, no plan and no reason" to target one another with BMD systems in Europe. Finally, the

Strike Force recommends that such a NATO-Russian agreement should act as the basis for an integrated European BMD system, which incorporates the sharing of security data, joint military exercises, and mechanisms for intra-systemic conflict resolution.

This proposed course of action represents an ambitious model for cooperation under ideal circumstances, rather than a *de facto* policy agenda. The Strike Force proffers an idealistic progression of US-Russian mutual cooperation, which enunciates the long-term objectives for multilateral BMD policy: continued deployment of BMD in Europe as a safeguard against Iranian nuclear development, a paradigm shift in US-Russian strategic relations, a formal political agreement concerning BMD intent in the region, and the formation of NATO-Russian collective security initiatives in furtherance of an integrated European BMD system. While these objectives underpin the majority of proposed BMD policy, the recommended methods in achieving them vary greatly within the policy literature. Having outlined the relevant national interests and their corresponding macroscopic objectives in BMD policy, a review of more credible mid- and short-term measures follows.

An increasingly popular prescription in the policy literature suggests that the way forward lies in incremental implementation of joint NATO-Russian infrastructure. At first constituting data sharing centers and marginal joint military exercises, shared infrastructure would expand to foster "transparency and trust-building" and, *ipso facto*, cultivate "the necessary conditions of cooperative security to ultimately lead to a genuine European security community" (François, 2012, p. 39). Concerted efforts to build and operate an early-warning radar in central Russia would serve as an intermediate between the less ambitious near-term steps, such as collectivizing testing data, and the sweeping collective security reforms first proposed. NATO-Russian early-warning radar would be an advantageous option for BMD cooperation because it would fulfill

the criteria of "enhance strategic stability; provide reciprocal security benefits for the US, Europe, and Russia; and involve industrial cooperation that could build trust and shared interest in the development of effective BMD to protect against long-range missiles" (Wilkening, 2012, p. 8).

This policy procedure aims to bridge the gaps in US and Russian national interests more gradually and pragmatically than the policy proposed by the Strike Force on National Interests. Nevertheless, policy in favor of unified NATO-Russian institutions would also confront considerable stumbling blocks in its execution. On the one hand, the US restricts exports of the technology required to construct an early-warning radar, while, on the other hand, Russia's aversion to a sustained NATO presence on its territory precludes even the general application of this collective security policy (Wilkening, 2012). Despite the potential for increased security for all involved parties, resolute action toward these ends seems unlikely, granted current tensions and restrictions.

Brookings Institute scholar, Steven Pifer proposes a feasible policy agenda for mitigating Moscow's concerns as a means of arriving at a NATO-Russian cooperative agreement, while also balancing these endeavors with measures to reduce the political fallout that would result from a breakdown in cooperation (Pifer, 2012, p. 25-6). Pifer outlines a policy package that would address the BMD issue in three progressive--yet highly pragmatic--regards, namely 1) increasing transparency, 2) altering US and NATO stances that impede advances toward cooperation, and 3) fostering better rapport between the US and Russia on security issues. First, the US and NATO should supply a *political* commitment not to direct BMD against Russia, which would precipitate measures for transparency, such as annual notification of BMD deployments, Defense Department technical briefings, and Russian observation of SM-3

interceptor tests. Second, Pifer argues that the US and NATO should amend their current policy stances toward more flexible and affirmative postures, indicating their willingness to: engage in provisional BMD cooperation subject to Russian withdrawal if a threat is still perceived; accommodate reasonable Russian suggestions so long as BMD protection of the alliance is not degraded; slow and/or desist the later, contentious phases of the EPAA if it becomes clear that Iran isn't progressing toward longer-range missiles. Third, the US should endeavor to establish ballistic missile threat assessment conference between the US, NATO, and Russia in order to come to agreement on the threats posed by Iran and North Korea.

Emphasizing the need for political changes in preemption of legitimate cooperative action, Pifer instills his policy proposals with a sense of prudence and credibility in the short-term, succeeding where preceding recommendations failed to connect current political realities with the achievement of long-term goals. Moreover, anticipating that his call for cooperation would incite controversy in Washington, Pifer conjectured reluctance to sharing sensitive data, changing NATO plans to accommodate Russian concerns, and slowing BMD development (p. 27). Pifer responds to these likely concerns: even without data sharing measures, Russia would still have considerable access to BMD information (e.g., Congressional budget proceedings, BMD tests on international waters, etc.); if defense of the alliance is maintained, refusal to alter NATO plans in consideration of Russia is unwarranted; and if Iran does not demonstrate progress toward longer-range missiles in the time up to 2020, there would be no real reason to continue developing BMD. Finally, Pifer underscores that the US must manage the problems that would arise in the event that Russia is unsatisfied with a political commitment and continues to demand a legal guarantee in order to prevent such a controversy from complicating broader US-Russian relations.

Policy Recommendations

Tensions between the US and Russian are steadily growing as the EPAA system approaches its 2015 deadline for the first land-based deployment in Romania; however, the true breaking point on the issue of BMD will not come until the 2018 deployment in Poland. Taking this fact into account, there remains plenty of time (some five years or more) to address the disputes between Russia and NATO before the EPAA phases most criticized by Russia are implemented. Currently, Russia and the US are deadlocked: Russia demands substantive legal affirmation that the US does not intend in any way to use BMD to degrade the Russian deterrent, while, considering the lack of political will for a binding legal commitment, the US resorts to reiterating that it has neither the intention nor the capability to do so. This deadlock is a major impediment for progress toward NATO-Russian cooperation and, as such, is one of the first issues needing to be resolved.

The second key issue for policy to address is the manner in which the antiquated Cold War infrastructure currently in place in Europe may be amended to integrate Russia as a strategic ally, instead of a strategic competitor. In pursuit of this aim, NATO must create a realistic role for Russia to play in European BMD and must be open to considering Russian interests as the EPAA continues to develop. As a major European power, Russia's incorporation in these collective security operations would greatly increase the stability and safety of the region, a mutual interest for all parties concerned. Whereas Russia has already proposed measures for cooperation, NATO has disregarded Russian interests as a non-factor, a posture that must change in order to avoid the negative consequences on broader issues, such as arms control and nonproliferation.

The US and NATO should consider that Russian integration is of value to each entity's national interest and, therefore, BMD cooperation should be pursued as a means of unifying and supporting the region's interests. Therefore, the US should seek to reconcile its interests with Russia's; that is to say, the US should maintain European strategic defense against Iran in such a way that it is not threatening to Russian interests. In so doing, the US could prolong the series of arms reductions initiatives with Russia, while also possibly sharing the costs of the EPAA and BMD in general with Russia and other European allies. In pursuit of these goals, the US should implement the following measures whenever feasible in the political atmosphere:

- On a fundamental level, the US should approach Russia in an effort to update the underlying security concepts in US-Russian relations, moving away from the strategic balance of deterrence toward a more cooperative, partnership-oriented paradigm.

- In lieu of a legally binding accord, the US should submit to Russia a formal political commitment concerning the EPAA and Russian deterrence, and, in order to grant further credence to this commitment, the US should pursue more robust measures for transparency (e.g., joint ballistic missile threat reviews and military exercises, data sharing, etc.).

- The US should establish an annual review of Iranian nuclear and ballistic missile capabilities, which will enforce the proportionality of the EPAA to the Iranian nuclear threat. Should Iran consistently prove incapable of menacing European interests across a span of two to three years, the EPAA should be suspended until such a time as the Iranian threat warrants further development.

- Political and technological concerns allowing, the US should pursue a bilateral BMD cooperation agreement with Russia, which could work as a framework for future ascension of Russia into the NATO collective security system.

- Finally, the US should emphasize NATO's role in Russian BMD integration, effectively leading from behind as a means of encouraging greater cohesion in the region and of providing stronger BMD protection of Europe.

Part V: Conclusion

In summary, the thesis treats three issues paramount to understanding BMD and US-Russian relations: EPAA feasibility, the empirical relationship between US support for BMD and US-Russian political affinity, and policy prescribed to more effectively maneuver within the increasingly complex political environment surrounding BMD technologies. The EPAA system currently poses an insignificant threat to Russian deterrent capabilities; however, the second, third, and fourth phases will gradually pose more legitimate threats of at least degrading deterrence. Regardless of the feasibility of the threat, Russian perceptions of BMD are such that, as the US increases financial and political support of BMD, US-Russian relations decline in political affinity. Finally, a policy agenda has been prescribed that would promote US-NATO-Russian cooperation toward collective security and the fulfillment of mutual interests.

The thesis also contributes to the growing literature on BMD by offering a comprehensive review of the topic with special attention to relevant theoretical models and their implications in public policy formulation. According to the theoretical examination of the Rational Deterrence theory and Spiral model, US and Russian reliance on deterrence encourages a strategically stable but nevertheless increasingly hostile diplomatic and political relationship. In light of Russia's reaction to perceived US operations debasing nuclear deterrence, the Security Dilemma posits that, as Russia strives to conserve its strategic parity with the US, defensive

build-ups between the two nations will ensue and, thus, instigate increasingly severe, back and forth exchanges of military force. The theoretical analysis concludes that a paradigm shift in the US-Russian relationship is ultimately desirable for both parties, allowing each state to differentiate between purely defensive maneuvers and readily assumed--but rarely legitimate--offensive actions in order to prevent the predicted downward spiral into armed conflict.

The findings of this thesis reach beyond the narrow focus of BMD in the US-Russian relationship and have broader implications in international affairs, especially the nuclear nonproliferation and arms control regimes. A solution for the disputes over BMD deployment in Europe represents a *sine qua non* for future US-Russian arms control negotiations, a series of agreements that exemplify global efforts toward disarmament. Should the two leading nuclear nations become incapable of cooperation on arms control and nonproliferation, these regimes would likely endure further challenges from around the globe, in addition to the intractable cases of Iran and North Korea. Therefore, the successful resolution of BMD issues and the ascendency of the US and Russia to the role of global leaders in nonproliferation and arms control signify increasingly salient imperatives for the maintenance of international order in a global political atmosphere that incentivizes nuclear proliferation.

In addition to endangering the precarious US-Russian relationship, US pursuit of adaptable, layered BMD systems could have pervasive ramifications for the international system as a whole, exacerbating relatively ubiquitous apprehensions about US military preponderance within the international system. US BMD systems may not only be obstructing progress in the non-proliferation and arms control fields but, furthermore, destabilizing the current global

political order. If US allies (e.g., Poland and Romania in Eurasia or Japan and South Korea in Asia) successfully install BMD systems in their territories within these regions, the delicate regional balances would likely atrophy and eventually collapse, possibly sparking arms races with Russia, China, and other states. As the US proceeds with BMD programs capable of intercepting missiles over both the Atlantic and Pacific Oceans, policy makers must also be mindful of the hazards of impinging upon strategic competitors' spheres of influence.

Indeed, as the US plans to deploy BMD more extensively in Eastern Europe and the Pacific regions in the future, China and Russia share concerns for their nuclear deterrent as well as a mutual interest in mitigating US capabilities to project soft and hard power in the Eastern hemisphere. The US leadership and intelligence community must conscientiously formulate an approach that harmonizes national interests in Europe and relations with these pivotal strategic competitors; otherwise, a Sino-Russian partnership may arise to oppose US primacy in the global arena. Having driven China and Russia to band together to confront Western intrusion in the region, the US would most likely encounter a new antagonistic *status quo* in which Eastern leadership and heightened anti-US sentiments would inhibit the attainment of crucial national interests. Therefore, whether by compelling Russia to align with Western Europe through collective security cooperation or by other means, discouraging Sino-Russian consolidation is of utmost importance to US national interests, and, lastly, foregoing BMD in order to ensure a favorable balance of power should be considered as a plausible alternative to the policy of excessive BMD development in vehemently contested regions.

In conclusion, this thesis has achieved the research goals it was set out to fulfill, providing a thorough examination of BMD, US-Russian relations, and the areas in which they intersect. However, research--especially policy research--is rarely if ever completely finished. Whereas this thesis sought to lay the foundations for empirical and theoretical analysis of an issue predominantly discussed in the public policy arena, synthesizing future policy developments with more sophisticated theoretical insights than those presented herein will most likely prove even more beneficial to both the academic and policy literatures on the subject. Ultimately, this thesis makes a relatively minor contribution in analyzing this pivotal period in US-Russian relations, but further research and analysis on future developments will be essential to navigating the mercurial nature of the US-Russian relationship.

Bibliography

Arbatov, A. Carnegie Moscow Center, Nuclear Policy. (2011). *Gambit or endgame? the new state of arms control*. Retrieved from Carnegie Endowment for International Peace website: http://www.ciaonet.org.proxy.lib.utk.edu:90/wps/ceip/0021867/f_0021867_18103.pdf

Barzashka, I. (2012). Technical concerns: Why russia worries about missile defense. *Bulletin of the Atomic Scientists*, Retrieved from http://www.thebulletin.org/web-edition/features/technical-concerns-why-russia-worries-about-missile-defense

Benedict, K. Dream deterred. (2012). *Bulletin of the Atomic Scientists*, Retrieved from http://www.thebulletin.org/web-edition/columnists/kennette-benedict/dream-deterred

Bohlen, A. (2003). The rise and fall of arms control. *Survival*, *45*(3), 7-34. Retrieved from http://www.tandfonline.com.proxy.lib.utk.edu:90/doi/pdf/10.1080/0039.2003.10071605

Butt, Y., & Postol, T. (2011). *Upsetting the reset: The technical basis of russian concern over nato missile defense* (Special Report No. 1). Retrieved from Federation of American Scientists website: http://www.fas.org/pubs/_docs/2011 Missile Defense Report.pdf

Center for the National Interest, Task Force on Russia and US National Interests. (2011). *Russia and us national interests: Why should americans care?*. Retrieved from Belfer Center for Science & Int'l Affairs website: http://www.cftni.org/Russia-and-US-NI_final-web.pdf

Clinton, W. (1999, July 22). *Statement on signing the national missile defense act of 1999*. Retrieved from http://www.presidency.ucsb.edu/ws/?pid=57940

Collina, T. (2013). *The european phased adaptive approach at a glance*. Retrieved from http://www.armscontrol.org/factsheets/Phasedadaptiveapproach

François, I. (2012). The united states, russia, europe, and security: How to address the "unfinished business" of the post-cold war era. *Transatlantic Perspectives*, *2*, Retrieved http://www.ciaonet.org.proxy.lib.utk.edu:90/wps/inss/0024949/f_0024949_20380.pdf

Gumenuk, A., Khramychev, A., & Valshonok, Z. (2010). The new quality of bmd. *Air-Space Defense*, no. 6: 60.

Herz, J. (1950). Idealist internationalism and the security dilemma. *World Politics*, *2*(2), 171-201.

Hildreth, S. The Library of Congress, Congressional Research Service. (2007). *Ballistic missile defense: Historical overview* (RS22120). Retrieved from U.S. Congress website: http://www.fas.org/sgp/crs/weapons/RS22120.pdf

History of russia's anti-ballistic missile (abm) system. (2002, Nov 27). Retrieved from http://www.ucsusa.org/nuclear_weapons_and_global_security/missile_defense/policy_issues/history-

Horovitz, L. (2011). A detour strategy for the test ban treaty. *The Washington Quarterly*, *34*(4), 87-99. Retrieved from http://www.ciaonet.org.proxy.lib.utk.edu:90/journals/twq/v34i4/f_0023555_19264.pdf

Huth, P. K. (1999). Deterrence and international conflict: Empirical findings and theoretical debates. *Annual Review of Political Science*, *2*, 25-48.

Jervis, R. (1976). *Perception and misperception in international politics*. Princeton, New Jersey: Princeton University Press.

Jervis, R. (1978). Cooperation under the security dilemma. *World Politics*, *30*(2), 167-214. doi: Cambridge University Press.

Kilgour, M., & Zagare, F. (1991). Credibility, uncertainty, and deterrence. *American Journal of Political Science*, *35*, 303-34.

Lewis, G., & Postol, T. (2012). The astonishing national academy of sciences missile defense report. *Bulletin of the Atomic Scientists*, Retrieved from http://www.thebulletin.org/web-edition/op-eds/the-astonishing-national-academy-of-sciences-missile-defense-report-0

Lindstrom, Gustav. (2012) "Developments and Implications of Missile Defence.". Ed. Thierry Tardy. Geneva: Geneva Centre for Security Policy, 2012. http://www.ciaonet.org.proxy.lib.utk.edu:90/wps/gcsp/0024793/f_0024793_20237.pdf

Mankoff, Jeffrey. (2012) "The Politics of US Missile Defence Cooperation with Europe and Russia." *International Affairs*. 88.2: 329-347. Web. 1 Nov. 2012. <http://www.ciaonet.org.proxy.lib.utk.edu:90/journals/riia/v88i2/f_0024620_20265.pdf>.

Medvedev, D. (2011). *Statement in connection with the situation concerning the nato countries' missile defence system in europe*. Retrieved from Kremlin website: http://eng.kremlin.ru/news/3115

Morgan, P. (1983). *Deterrence: A conceptual analysis*. (2nd ed.). Beverly Hills: Sage.

National Research Council. (2012). *Making Sense of Ballistic Missile Defense: An Assessment of Concepts and Systems for U.S. Boost-Phase Missile Defense in Comparison to Other Alternatives*. Washington, DC: The National Academies Press.

North Atlantic Treaty Organization, (2013). *Nato's relations with russia*. Retrieved from website: http://www.nato.int/cps/en/SID-4E89AB70-6CC6687B/natolive/topics_50090.htm?selectedLocale=en

Peña, Charles, and Barbara Conry. (1999). "National Missile Defense: Examining the Options." *Policy Analysis*. 337: 1-23. Web. 1 Nov. 2012. <http://www.ciaonet.org.proxy.lib.utk.edu:90/wps/pec01/pec01.pdf>.

Pifer, S. (2012). *Missile defense in europe: Cooperation or contention?* (Paper 8). Retrieved from The Brookings Institution website:http://www.brookings.edu/~/media/research/files/reports/2012/5/08missile defense pifer/0508_missile_defense_pifer.pdf

Pifer, S. (2013, Jan 17). *Nuclear arms control: Another new start*. Retrieved from www.brookings.edu/research/papers/2013/01/nuclear-arms-control-another-new-start

Reed, T., & Stillman, D. (2009). *The nuclear express: A political history of the bomb and its proliferation*. Minneapolis: Zenith Press.

Rukavishnikov, Vladimir. (2008). "Connections." *Connections*. 7.4: <http://www.ciaonet.org.proxy.lib.utk.edu:90/journals/co/v7i4/f_0013233_10745.pdf>.

Stocker, Jeremy. (2011). "The Strategy of Missile Defence: Defence, Deterrence and Diplomacy." *Royal United Services Institute for Defence Studies Journal*. 156.3: 56-62.

Strezhnev, A., Voeten, E. (2013). "United Nations General Assembly Voting Data", http://hdl.handle.net/1902.1/12379 UNF:5:NpHV5DXWPNWMWOrLGTjQYA== Erik Voeten [Distributor] V5 [Version]

U.S. Congress. (1995). *Ballistic missile defense act of 1995* (H.R. 983). Retrieved from 104th Congress website: http://www.govtrack.us/congress/bills/104/hr983/text

U.S. Congress. (1996). *Defend america act of 1996*(S.1635). Retrieved from 104th Congress website: http://www.fas.org/spp/starwars/congress/1996/s960321a.htm

U.S. Congress. (1999). *National missile defense act of 1999* (S.257). Retrieved from 106th Congress website: http://www.govtrack.us/congress/bills/106/s257/text

U.S. Department of Defense, Ballistic Missile Defense Organization. (2012). *European phased adaptive approach ballistic missile defense: Technical overview*. Retrieved from website: http://photos.state.gov/libraries/russia/231771/PDFs/EPAATechnical Overview ENG.pdf

U.S. Department of Defense. (2010). *Ballistic missile defense review*. Retrieved from website: http://www.defense.gov/bmdr/docs/BMDR as of 26JAN10 0630_for web.pdf

U.S. Department of Defense, Missile defense agency. (2013). *Historical funding for mda fy85-13*. Retrieved from website: http://www.mda.mil/global/documents/pdf/histfunds.pdf

U.S. Department of Defense, Missile defense agency. (2013). *History of US missile defense efforts 1945-present*. Retrieved from website: http://www.mda.mil/news/history_resources.html

U.S. Department of Defense, Ballistic Missile Defense Organization. (1991). *The president's new focus for sdi: Global protection against limited strikes (gpals)*. Retrieved from The Pentagon website: http://www.dtic.mil/dtic/tr/fulltext/u2/a338966.pdf

U.S. Department of Defense, Defense Science Board. (2011). *Science and technology issues of early intercept ballistic missile defense feasibility*. Retrieved from website: http://www.acq.osd.mil/dsb/reports/ADA552472.pdf

U.S. Department of Defense, Missile defense agency. (2013). *Ballistic missile defense intercept flight test record*. Retrieved from website: http://www.mda.mil/global/documents/pdf/testrecord.pdf

U.S. Department of Defense, Missile defense agency. (2013). *The ballistic missile defense system (bmds)*. Retrieved from website: http://www.mda.mil/system/system.html

U. S. Department of Defense. (2010). *Nuclear Posture Review*. Washington, DC. <http://www.defense.gov/npr/docs/2010 Nuclear Posture Review Report.pdf>.

U.S. Department of Defense, Strategic Defense Initiative Organization. (1987). *The strategic defense system architecture*. Retrieved from U.S. Government website: http://www.archives.gov/declassification/iscap/pdf/2009-033.pdf

U.S. Department of Defense. (1993). *The bottom-up review*. Retrieved from Pentagon website: http://www.dod.mil/pubs/foi/administration_and_Management/other/515.pdf

U.S. Department of State. (2007). *Proposed u.s. missile defense assets in europe*. Retrieved from website: https://www.fas.org/irp/threat/missile/bmd-europe.pdf

U.S. Department of State, (1972). *Treaty between the usa and the ussr on the limitation of anti-ballistic missile systems*. Retrieved from website: http://www.state.gov/www/global/arms/treaties/abm/abm2.html

U.S. Department of State. (2001). *U.s. withdrawal from the abm treaty: president bush's remarks and u.s. diplomatic notes*. Retrieved from website: http://www.armscontrol.org/act/2002_01-02/docjanfeb02

U.S. Government. (1983). *Eliminating the threat from ballistic missiles* (Directive no. 85). Retrieved from The White House website:https://www.fas.org/spp/starwars/offdocs/nsdd085.htm

U.S. Presidency, Office of the Press Secretary. (2009). *Remarks by the president on strengthening missile defense in europe*. Retrieved from The White House website:http://www.whitehouse.gov/the-press-office/remarks-president-strengthening-missile-defense-europe

Weitz, Richard. "Illusive Visions and Practical Realities: Russia, NATO and Missile Defence."*Survival: Global Politics and Strategy*. 52.4 (2010): 99-120.

Wilkening, Dean. “Cooperating With Russia on Missile Defense: A New Proposal.” *Arms Control Today*. 42.2 (2012): 8-13.

Zenko, Micah. "Toward Deeper Reductions in U.S. and Russian Nuclear Weapons." *Council on Foreign Relations Special Report*. 57 (2010): <http://www.ciaonet.org.proxy.lib.utk.edu:90/wps/cfr/0020261/f_0020261_17135.pdf>.