Risk and Hedging:
A Forecasting Model Analysis of Estonian Security Strategy

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Abstract

Post-Soviet Estonian security management behavior is used as a case study to differentiate and conceptualize "hedging" as a distinct and integral security risk reduction behavior in International Relations. A forecasting model developed by Bruce Bueno de Mesquita is utilized to structure and analyze the interactions of all stakeholders involved in contentious negotiations over an issue. The research utilizes the model to substantiate and confirm the concept of "hedging" through the modeled spatial and Bayesian output manifestations of stakeholder security-related interactions. The same process to substantiate "hedging" as a distinct security-enhancing behavior also highlights benefits and risks of "hedges". The extended research consists of a comparative three hypothetical Scenario framework and a security related issue (the April 2007 Bronze Soldier incident) which identifies spatial attributes, characteristics and overall systemic impact associated with Estonian security "hedging" behavior through membership in NATO and the EU. Such NATO and EU institutional linkages to Estonia are assumed to increase salience of fellow members to Estonian security-related issues such as the Bronze Soldier dispute with the Russian Federation. The analysis finds that NATO and EU membership for Estonia provided efficacious security enhancement in the dispute. Further determinations are made about Estonian "hedging" costs relative to the uncertainty of future benefits of either or both NATO and EU institutional "hedges". Additionally, the research gives a picture of regional stakeholder relations and determines that NATO and EU institutional expansion in the Estonian case contributes to European regional security and systemic stability.

CONTENTS

1. Introduction

Following the dissolution of the Soviet Union and the end of the Cold War a swathe of former Eastern Bloc and Soviet countries needed to construct new political, economic and social systems. These newly emancipated nations provided a rare empirical example, a laboratory of sorts, of how states behave in formulating their political and economic lives and craft security strategies to ensure that their nascent political and economic livelihoods are secure. Estonia is a typical example of such a post-Soviet state. It moved politically from one-party dictatorship to parliamentary democracy, economically from a centrally planned to a market based economy, and socially from a minority in a Russian dominated Soviet Union to a minority (with a sizable ethnic Russian minority) in a pluralist democratic European Union.

In international relations and security studies the implosion of the Soviet Union has been a research catalyst for political scientists and political economists from constructivist (Buzan, Ruggie, W□ver, Wendt), realist/neo-realist (Jervis, Mearsheimer, Schweller, Walt, Waltz) and positivist/rational choice (Bueno de Mesquita, Fearon, Kugler, Olson, Achen/Snidal, Weingast) research orientations.

The constructivist orientation is ontologically differentiated from the other orientations in that it is premised on the belief that human social relations and therefore international relations are social constructions. Wendt begins his constructivist International Relations tome with the statement "structures of human association are determined primarily by shared ideas rather than material forces, and that the identities and interests of purposive actors are constructed by these shared ideas rather than given by nature."[1] For constructivist researchers the ethereal and material reality of politics is ideationally built on socially conceived structures. Research tools such as the forecasting model can bridge across research orientations because of their reliance on qualitative as well as quantitative expertise. Qualitatively trained South Asia area specialist Professor Bueno de Mesquita whose model is utilized in this research states that rational choice and constructivism "don't exclude but rather complement each other. Constructivism is all about how preferences arise and rational choice takes them as given to predict outcomes, so this is potentially a great combination".[2] The synergetic research possibilities are promising.

The specific topic of Estonian security strategy has been looked at by constructivist researchers (Aalto, Hansen/Nissenbaum, Kuus, Sjursen) using identity-oriented approaches. Research surveys of Estonians and Russophones found that, contrary to the general belief that security and identity are fatefully intertwined, Estonian domestic politics have many security preference variations amongst the population (Aalto 2003). In other research, identity politics is seen as a double edged sword with preservation of Estonian identity linked to a Russian threat at odds with the threat to Estonian identity associated with EU and NATO integration hence

[1] Wendt 1999.
[2] TheoryTalks: Bueno de Mesquita 2009.

ambivalence in pre-NATO/EU public preferences (Kuus 2002). These studies were done prior to formal Estonian NATO and EU membership and provide qualitative insights into domestic political preferences. The findings bolster the multi-dimensional nature of "hedging" concept of this research which is predicated on security interests, preferences and threats.

Constructivist research subsequent to Estonian NATO membership is exemplified through an institutional identity of NATO approach which looks at norms and democracy as major contributors of alliance cohesion (Sjursen 2004.) The author states in the her article, that because international relations is anarchic without higher law NATO can be " an organization governed at best by the principles of multilateralism, at worst by that of bilateralism, as they refer to different ways of organizing relations between sovereign states, different forms of institutional cooperation".[3] Sjursen states the differences over Iraq and NATO expansion to the east highlights pro and con factors in the normatively-governed institutions argument. A major factor of Estonian security policy and the decision-relevant methodological basis of this thesis research concerns these same normative political considerations referred to as preferences.

Another constructivist article applied securitization theory to the aftermath of the Bronze Soldier incident between Estonia and Russia to characterize the first case of "cyberwarfare" conducted against a state and define the threat in an ideational context. (Hansen/Nissenbaum 2009). This thesis research uses the Bronze Soldier as a premise incident and because the Bronze Soldier dispute presented a material threat to Estonian state security Hansen/Nissenbaum's research is an important qualitative contribution to understanding the character of threat on which any attempt to conceptualize "hedging" can be made. These approaches provide valuable insights into factors which contribute to Estonian security preference formation. The material nature of the threat to state security was confirmed by the Bronze Soldier dispute between Estonia and Russia and lends further credence to the "hedging" concept. The forecasting model provides a consistent framework to analyze the multilateral complexity to what the researchers allude. It affords the ability to measure both spatially and virtually stakeholder positions much the same as the actual monument's physical diposition was measured in Tallinn.

The positivist orientation is ontologically differentiated from the constructivist orientation in that it is premised on the belief that human relations are materially based and influenced. According to the research orientation power, clout and capability are the bases for effecting change in international relations and security. Realist/neo-realist (Jervis, Mearsheimer, Schweller, Walt, Waltz) and positivist/rational choice (Bueno de Mesquita, Fearon, Kugler, Olson, Achen/Snidal, Weingast) research orientations share the same ontological foundation but differ on methodological applications to conduct research. Realist and neo-realist research is characterized primarily by normal language methodological constructions and supported occasionally by statistical substantiation. Most of the neo-realist security literature concerns political power underwritten by material military and economic capabilities and how states interact dynamically within the constraints of these material forces. Positivist and rational choice research consider similar factors and aspects but positivist research is characterized by

[3] Sjursen 2004.

the use of a foundation of methodological rigor usually exemplified in a formal mathematical model representing actors, interests and preferences.

The specific topic of post-Soviet security strategy has been looked at by realist and neo-realist researchers using statistical and qualitative methods. An example of such research is a paper on the impact of NATO-linked reduction of external threat on former Soviet republics such as Estonia being positively correlated to survival and expansion of post-Soviet democratic regimes (Gibler and Sewell 2006). The normal language argument in the paper asserts NATO linkages reduce external threats and are therefore conducive to democracy as substantiated by qualitative and statistical support.

Positivist research in security studies usually do not study individual actors such as Estonia. The multidimensional and multilateral nature of rational choice research is attributed to social choice and game theoretic heritages. This means most positivist research analyzes relations of individual actors in collective settings to determine relative cost/benefit metrics and issue positions of individual actors relative to a collective equilibrium or a ideal social choice. Therefore, case studies of individual states in decision-making are not usually researched separately from the collective. For example, a positivist EU security burden-sharing research finds that smaller EU states contribute evenly to collective EU security arrangements and that free-riding did not complicate provision of EU collective security goods (Dorussen et. al. 2009). Individual state results are derived from the group equilibrium. Another journal article finds that NATO costs and benefits are still subject to cost asymmetries associated with collective action externalities (Sandler and Hartley 2001). Positivist studies of size asymmetries between alliance members attempt to find economic trade reasons to justify the seemingly asymmetric conditions of security for small alliance members and the risk to larger alliance members of small states starting conflicts (Fordham 2010).

Of all the available research orientations, the intuitions, assumptions, concepts and consistent methodology from the rational choice orientation provide an efficient methodological approach encompassing strategic interests, preferences and choice as key variables to further understand dynamic relationships in International Relations. Indeed, these three variables are most logically relevant to the fledgling situations of post-Soviet states such as Estonia and therefore the research utilizes a positivist/rationalist framework.

This thesis research is predicated on a threat incident which occurred subsequent to the 2004 Estonian NATO and EU membership. The predictive forecasting model provides a consistent framework to create a hypothetical scenario and analyze it comparatively in a three scenario pre and post- NATO/EU research scheme. The model is methodologically complementary with the attempt of the thesis to conceptualize “hedging” behavior by validating or negating the defined behavior through spatially measured verification. Ideational or normal language attempts to accomplish the same task would be highly complicated by the multi-dimensional nature of the Bronze Soldier dispute, the manifold individual stakeholder factors involved in complex decision-making, and would probably be outside the length constraints of a thesis. However the basis of the research arguments remain the strategic security-seeking “hedging” behavior of the post-Soviet state of Estonia.

State behavior of the kind exhibited by Estonia in joining many institutions such as NATO and the EU for security enhancement interests has been a research topic for International Relations scholars for decades. Alliance theory and deterrence theory have been developed to explain such complex behavior. This security seeking behavior is characterized by realist and neo-realist researchers drawing an analogy with physical balance. Alliances for these researchers deter conflict when states or coalitions are in balance. The literature extends from the "balance of power" theory and "bandwagoning" (Waltz 1979) where states ally themselves with or against powerful states, to the "balance of threat" theory of alliance formation (Walt 1988) where states ally themselves against threats. The research area has evolved to attempt to accommodate observed complexities in state security behavior with "balance-of-interests" theory (Schweller 1994) which hypothesizes that states join alliances not only for protection but for opportunities to gain power.

However, balance does not seem to sufficiently capture the case of Estonian security management behavior which entails complexities from being a member of both NATO and the EU. In the strict definitions of the terms, Estonia is not balancing against a superpower, or bandwagoning with a superpower to appease it or gain unearned spoils. The behavioral process involved in managing security risk through participation in multiple institutions is more complex than balancing. It appears to be closer to the "hedging" behavior found in finance.

Recent research on alliances is split over the relationship between alliances and war. Some research links alliances with provocation of conflict (Vasquez 1993) while others indicate that formal alliances such as NATO may provide information to states about the negative repercussions of challenging a fellow alliance member. Formal alliance treaties provide costly signals to inform challengers of the increased probability that a bilateral conflict concerning an alliance member will expand into a multilateral conflict thereby deterring challenges to alliance members (Leeds 2003). Empirical substantiation indicates alliance commitments being performed 75% of the time (Leeds, Long, and Mitchell 2000). However, NATO divisions over commitments in the 2011 Libyan campaign show that salience over an issue may mitigate the efficacy of a formal alliance in a conflict.

Complex interdependence theory (Keohane and Nye 1997) has been developed as a research perspective which hypothesizes that increased cooperation between states in many forms, including institutions, makes states interdependent and lessens the risk of conflict. The historical record shows that cooperation exists when all parties find it necessary or useful to their respective goals. However, alliance membership is no ironclad guarantor of security. The potential for institutional failure can be attributable to individual state interests taking precedence over cooperation within institutions. Rational deterrence and alliance theoretical approaches have strong logical argumentation but historical case studies show that deterrence and alliance failure is common and empirically alliances do not completely ensure security (Achen and Snidal 1989). To a large extent the Estonian security "hedge" is dependent on effective institutional cooperation now, and with some probability, at some point in the future.

International institutions provide social scientists with interesting research subjects and have given rise to studies of dynamics where participants, or stakeholders, interact in

dynamic relationships under the assumption of self interest and preference. Much of contemporary rational choice International Relations literature deals with interest-based relations amongst nations within institutions such as NATO (Olson, Zeckhauser 1966, Oneal 1990,), and the EU (Bueno de Mesquita, Stokman1994). The common characteristic of much of the research revolves around groups of different sized states negotiating individual interests in collective settings like the EU and NATO. In particular, the post-Soviet body of security research looks at the cost-benefit implications of institutional enlargement concerning NATO decision-making (Aggarwal 2000, Kydd 2001, Kelley 2004), and NATO burden sharing (Kim et. al. 1998, Sandler and Hartley 2001), as well as EU decision-making (Boekhoorn et. al. 2003, Koenig-Archibugi 2004), and EU security burden sharing (Dorussen et. al. 2009). The overriding questions here are who decides policy (decision-making) and who funds implementation (burden sharing) of these decisions?

Collective action arguments (Olson 1965, 1966) have made a great impact on the body of research by applying economic intuitions to the dynamics of collective settings to explain cost-benefit relations amongst states within institutions. A major assumption of the argument is that states derive benefits from institutional cooperation otherwise they would not cooperate. A popular concept in this argument is "free-riding" whereby members are theorized to attempt to gain as many goods, in this case security and security policy influence, as possible while paying as little or nothing for these goods. Contrary to free-riding, Estonia has paid, and is paying with blood and treasure now through NATO participation in Iraq and Afghanistan and EU policing actions in Bosnia. If these costs are assumed to be part of these institutional "hedges", it logically follows that Estonia must implicitly expect some type of benefit from institutional membership whether it be either current aggression deterrence, or collective defense performance from fellow institutional members at some unknown point in the future should the need arise.

The research addresses "fairness" aspects of relations within institutions but does not attempt to identify the mutually advantageous factors for small states like Estonia and the multiple institutions it has joined primarily for security purposes. Put another way: do larger states use alliances and organizations as coordination devices to defray costs and manage security and political outcomes or, do these same institutions provide smaller states with apparent security as well as a venue to influence outcomes? Does Estonia get other benefits besides deterrence from strength in numbers? Statements by Estonian officials have shifted from a primary goal of security from aggression via NATO and EU memberships to "shaping"[4] security policy in Europe or, actively managing risk through preference based policy. If this "security policy shaping" capability is a benefit of institutional membership then what are the systemic ramifications of these choices? The notion of "policy shaping" by small states creates a paradox because if small states seek protection from larger more powerful states by joining alliances then how can these same small states not be marginalized within alliances by larger more powerful states within same alliance?

Size does matter in International Relations. If a larger state can cohesively muster all resources from within its political boundaries in a negotiation with a smaller state it

[4] Estonian Presidential Portal 2008.

logically follows that the larger state will usually prevail. Larger states can use their size as an asset but smaller states have everything else to contend with, in addition to their smaller size, relative to larger states. Following this size associated logic seems to point to the insignificance of small states in International Relations. However, empirical observation shows that in the post-Cold War environment small states lobbied for memberships and were courted by institutions such as NATO and the EU. Small states matter to larger states such as the United States which sought a "coalition of the willing" for an Iraq invasion. These same small states also appear to matter to Russia which was highly agitated by the Baltic States joining NATO.

As the successor state to the Soviet Union which occupied Estonia for 46 years, the Russian Federation became identified as a primary security risk to the once more independent Estonia. Like other small post-Soviet states, Estonia aspired to become a member of, and was courted by, alliances and organizations like NATO and the EU. For Estonia security was the preeminent objective of garnering membership in NATO which is a collective defense alliance. Membership in the EU also provided some security through political and economic interdependence with other European states.

Can such behavior be differentiated from conventional concepts of state behavior (balance, free-riding, interdependence) where states seek to reduce security risk by joining one or more organizations as Estonia did in 2004? Finland, Norway, and Estonia all share a border with Russia. Finland is a non-NATO state with EU membership, Norway is a non-EU state with NATO status, and Estonia has memberships in both. Reducing risk by joining clubs makes sense for some states and not for other states depending on advantages weighed against disadvantages. Nevertheless, this kind of security-seeking state behavior is a common denominator in state security management strategies.

International Relations security research literature lacks a satisfactory conceptual term to describe such behavior. The proposition of this research is to fill this gap and develop "hedging" as an appropriate descriptive concept and, in combination with a forecasting model, to substantiate and characterize its impact on the Estonian state security and the regional European collective security environment.

The author's professional background in financial trading, analysis and investment management provided some basis for the research perspective in this paper. Central to the financial world is the possibility of getting hurt or exposure to "risk". A few years spent at the New York Stock Exchange in addition to some time spent in the rough and tumble world of the "SP00Z" and "NAZ" futures options "pits" of Chicago provided a wealth of real world experience dealing with risk. Empirical observations at the Chicago Mercantile Exchange confirmed that learning to "read the crowd" and quick hand signals were just as vital as a good set of shoulders and a loud bark in negotiating trades to manage, or "hedge" risk. Many times this "hedge" behavior consisted of dealing with more than a single counterparty to reduce one's risk. It did not appear much different from the atmosphere the author had experienced at Public School 122 in Queens where it seemed advantageous to have relations with more than one schoolyard clique unless a conflict forced a choice between sides.

The issue of Estonian security management behavior after the dissolution of the Soviet Union seemed to exhibit analogous trappings to financial trading and the concept of risk management or "hedging". In finance, "hedging" entails taking a position which correlates inversely with an existing position to reduce loss associated with the existing position should some event occur, say, a drop in price. Simply, stated "a hedge will compensate for potential losses associated with an existing position should some event occur". In security politics, "hedging" can be simply defined as diversification of security policy through establishment of a position or positions (such as joining NATO and the EU) to lower security risks associated with some possible event happening (being subject to aggression at some point in the future).

Similarities between financial risk "hedging" behavior and the Estonian security management process include choice, time, constraints, costs, benefits, risk/reward, opportunity costs, and probabilities. However, the most important common trait of both, are that both processes demand invocation of the "hedge" predicated on some event occurring (in finance, a price drop, and in international relations, a threat). In this respect, "hedging" and "hedges" are dynamic tools motivated by the mutual self-interest of actors and requiring some type of interaction between actors to be invoked. Substantiation and characterization of a "hedge" in finance usually relies on a quantitative model or models (such Capital Asset Pricing Model-CAPM, Black-Scholes) to define the results should an event occur (price drop). Hence the positivist research orientation of this thesis and the utilization of a forecasting model to differentiate, conceptualize and analyze this kind of complex security oriented behavior in International Relations which is predicated on an event occurring such as a security threat or a dispute over a security sensitive issue.

Estonia constituted in a unitary actor a confluence of variables including small size, security interests, preferences and choice, and what appears to be "hedging" behavior to manage security risk in a post-Soviet international environment. The 2004 memberships of Estonia into NATO and the European Union was not only indicative of a grand enlargement and massive dynamic changes in the international relations landscape. It provided the opportunity to research, characterize and conceptualize security risk "hedging" behavior and identify benefits and risks associated with NATO and EU "hedges".

Did joining NATO and the EU, as "hedges" of security, provide security enhancement for Estonia as intended? The intention of the research is to substantiate "hedging" as a viable concept in International Relations and determine whether Estonian security "hedging" behavior is effective in enhancing security. Is joining both organizations too costly relative to the uncertain future benefits of either or both NATO and EU memberships? Does an isolated Russia, with NATO at its border, contribute to instability of overall systemic relations therefore being counterproductive to long term Estonian security? A forecasting model will provide insight into regional stakeholder relations and attempt to ascertain whether Estonian security was enhanced once Estonia "hedged" its security risk by joining NATO and the EU. Using the April 2007 Bronze Soldier incident as a point of conflict between Estonia and the Russian Federation, the forecasting model can answer these questions and shed light on the state of regional relations.

Jacek Kugler of Claremont Graduate University helped efficiently differentiate the many relevant applications available to analyze my research topic. * The thesis will utilize a non-cooperative expected utility-based forecasting model[5] which has been developed by Professor Bruce Bueno de Mesquita of New York University. **

What can be gleaned from researching post-Soviet Estonian security behavior vis-a-vis NATO and EU expansion and extension of membership to Estonia? How can a forecasting model substantiate or measure whether "hedging" through NATO and the EU occurs should a threat event arise? The aim of this research is to utilize the methodological rigor of a predictive forecasting model to analyze Estonian security strategy behavior and see if the results substantiate the concept of "hedging". For the purposes of this research, "hedging" is defined as multilateral strategic acts (such as joining NATO and the EU) taken by a nation to reduce security risk (risk that is associated with 100% neutrality, non-alignment, or total exposure to all the security risks of Estonian geopolitical and economic space) should some event occur (threat to security). In essence, what does Estonian "hedging" behavior look like concerning a security issue when formally modeled? Does the model shed relevant variables which confirm and/or identify the existence of the "hedge" i.e. does the model confirm alliance members' "defensive" behavior should a threat to Estonia arise? When a contentious issue appears such as the April 2007 Bronze Soldier incident did membership in NATO and the EU measurably bolster Estonian security? What does the forecasting model as a research tool show about the systemic implications, or impact on all stakeholders collectively, of the expansion of NATO and EU (Estonia's security hedges) to Estonia and to the borders of Russia?

The modeled interactions over an issue important to Estonia involve many other stakeholders whereby a picture can be created of the collective impact Estonian issues have for all regional stakeholder relations. The spatial results of the model should give some insight into Estonian and other stakeholders' security preferences, risks, and choices under uncertainty. The model provides a consistent framework to apply or ease constraints reflecting empirical realities and helping to flesh out the concept of "hedging" in this context. The model will reveal attributes of the impact of NATO and EU "hedges" on all stakeholder positions on the issue. The output of the forecasting model combined with the extended research will show the effects upon all the participants of decision-making collectively as they relate to the Estonian case.

Furthermore, the research project will interpret the characteristics, cost/benefits and risk of separate and combinatory EU and NATO security "hedges" in the Estonian case. Evaluation of the utility of the "hedge" at the point of decision will then be enhanced with further evaluation of the effectiveness of risk management subsequent to the decision point to answer the research questions: Did Estonia's decision to enter both the EU and NATO provide an appropriate security utility and adequate security risk reduction? Did Estonia "adequately hedge" itself considering both security enhancement/risk reduction and the membership costs and obligations of joining both organizations?

[5] Bueno de Mesquita 2009.

*Many thanks to Jacek Kugler for taking time out of his busy schedule to review my draft proposition and give suggestions.

**I am grateful to Bruce Bueno de Mesquita for not only granting me access to the student version of the software but sending me his forthcoming article which further explains the newer version of the model in detail.

This research paper will attempt to contribute to the field of knowledge in International Relations by substantiating differentiating and defining the concept of "hedging" political and security risk. "Hedging" behavior manifested in "hedges", or taking a position or positions (NATO and EU memberships) to offset risk, combined with a formal model will provide a thorough examination of stakeholder relations over a security related issue (the Bronze Soldier). The examination of Estonian security "hedges" (joining NATO and the EU) using a formal model will illuminate the impact of such "hedge" behavior on individual and regional relations. The choice of Estonia as a research nexus encompassing all of the relevant variables, combined with an operational social choice/decision theoretic/expected utility approach, provides a consistent, thorough and efficient framework for analysis. After conceptualizing "hedging" and interpreting "hedge" attributes via the outputs of the model, the same outputs will serve as the foundation for extended research and commentary into Estonian security strategy. Insight into the dynamics of security risk management decisions in the Estonian case is not limited to defining and conceptualizing "hedging". The additional value of the research will be increased insight into the broader implications of Estonian "hedging" collectively for NATO, the EU, the Russian Federation and other regional stakeholders.

The paper will give a description of recent Estonian political history, the role of NATO, the EU and regional political and security relations. The problematization of the subject of security-related "hedging" behavior and identifying the common factors in finance and international relations will outline the conceptual gap in the International Relations literature. A comparison between security "hedging" in international relations and the similar conditions and behavior encountered in risk management in the financial trading sector will further elucidate the conceptual argument for "hedging" and the case of Estonia. Following a literature review, the paper will give a brief survey of the broader positivist research orientation, its tenets, intuitions and evolution with a section on social choice and the Median Voter Theorem.

A subsequent section describes the research framework including the forecasting model with definitions and descriptions of the input variables and calculations. Vital components of the forecasting model in this research are the issue, stakeholders' positions on the issue, and stakeholders' capabilities, flexibility/resolve, and salience over the issue which for purposes of this research is the April 2007 Bronze Soldier incident. The background of the Bronze Soldier issue and controversy surrounding it are explained to obtain a sense of what is the source of contention, which stakeholders were in contention over the issue, and how they positioned themselves on the issue of contention. The general purpose of this section is to explain how a local domestic issue concerning a symbol expanded into an international issue of contention and how it serves as a proxy issue to test whether and how Estonia's NATO and EU security "hedges" work when invoked by a security threat (contention over disposition of the Bronze Soldier).

Once the forecasting model, variables, and issue are explained, the paper will outline the analysis process. This analysis process will consist of running three separate scenario simulations through the forecasting model which concern the same security-related Bronze Soldier issue. The three simulated scenarios will be identified respectively as (1) Estonia Pre-NATO/EU representing a "neutral non-aligned" Estonia, (2) Estonia Post-NATO representing Estonia as a NATO alliance member, and (3) Estonia Post-EU representing Estonia in a formal

institutional linkage with the EU. All input variables will be held constant in each scenario except for the salience input. The salience variable is an indicator of the degree of importance each stakeholder assigns to an issue which in all scenarios is the 2007 Bronze Soldier dispute. The reason for this salience variability is the key analytical assumption that salience on security-related issues increases with institutional linkages.

The first scenario, Estonia Pre-NATO/EU, will serve as a hypothetical base representing contention over the Bronze Soldier issue as if Estonia was "neutral". This reflects the fact that the conflict over the monument occurred subsequent to 2004 Estonian NATO and EU memberships. The other salience-linked scenarios will be compared to this hypothetical first scenario.

The second scenario, Estonia Post-NATO, will represent contentions over the issue after Estonia joined NATO in March 2004. In this second scenario, all initial input variables will remain unchanged from those used in the first scenario except for salience which will be assumed to increase for all NATO members concerning fellow members' security-related issues. To reflect this assumption, the salience input in this second scenario will be raised 5 scalar points for each NATO stakeholder reflecting the increased importance in contentious negotiations of the Bronze Soldier issue to Estonia as a formally inducted member of NATO. In this second scenario, salience is also increased by 5 scalar points for Russia, Belarus and Ukraine because these states are either a primary party to a conflict with NATO member Estonia (Russia), are allied to a primary party to the conflict (Belarus), or are regional stakeholders bordered by NATO alliance member states (Ukraine).

The third scenario, Estonia Post-EU, will represent contentions over the Bronze Soldier issue after NATO member Estonia joined the EU in May 2004. All input variables in this third scenario will remain unchanged from those in the second scenario except for salience. In this third scenario, salience will be raised 5 scalar points for each EU stakeholder to reflect the increased importance for other EU members of any security issue relating to Estonia, as a formally inducted member of the EU, would have in contentious negotiations. As in the second scenario, salience in this third scenario is also increased by 5 scalar points for Russia, Belarus and Ukraine because these states are either a party to conflict with an EU member Estonia (Russia), are allied to a primary party to the conflict (Belarus), or are regional stakeholders bordered by EU member states (Ukraine).

The three scenario outputs will be compared to each other and the results will be interpreted, based on the model's comparative variables, to substantiate or negate the concept of "hedging" as defined in this paper. If confirmed, the research will further identify benefits and risks associated with "hedging" behavior and "hedges" both individually for Estonia and the system as a whole. Further qualitative information pertaining to factors and risks outside the purview of the modeled interactions will extend the quantitatively derived results to form a fuller understanding of security management behavior for Estonia and its impact on all stakeholders.

2. Historical Background

In 1991 the Soviet Union dissolved as a hegemonic power. Many observers identified this as the end of a bipolar international system with the United States becoming a dominant power in international relations. As a result of the collapse of the Soviet Union, Estonia regained independence on August 20, 1991 after a period of 46 years. Estonia's previous period of independence began on February 24, 1918, subsequent to the Bolshevik Revolution and collapse of Tsarist Russia, and ended in June 1940 when it was occupied by the Soviet Union. Estonia was occupied by Nazi Germany at the outbreak of World War II and annexed by the Soviet Union at the end of World War II.

Historically, Estonia has been highly affected by other regional states' foreign policy postures and bargaining powers. Until recently Danish, Swedish, German, Tsarist and Soviet Russian expansionist tendencies have been part of the eastern Baltic political milieu. The most recent example of this "third parties" effect preceded World War II when Germany and the Soviet Union agreed the Molotov-Ribbentrop pact which carved out spheres of influences in Eastern Europe. The pact allowed an unimpeded Soviet occupation of Estonia in June 1940. Over 60,000 Estonians were deported to Soviet prison camps in Siberia or executed outright. The German attack on the Soviet Union at the beginning of World War II brought a Nazi German occupation and then the Red Army's advance in 1945 ushered in Soviet occupation and annexation of Estonia. Post-Soviet Estonian foreign policy has taken this historical experience into account.

Two of the main foreign policy objectives of the newly independent Estonian state were to gain membership of NATO and the EU. These objectives were achieved on 29 March 2004 and 1 May 2004 respectively. These accomplishments were described in the Estonian President's speech of 24 February 2007 as providing Estonia with "the securest place we have ever had, throughout centuries – in Europe, in the European Union and in NATO"[6]

2.1 NATO – North Atlantic to New Afghanistan Treaty Organization?

and the EU - European to Engagement Union?

NATO is a collective security and defense alliance formed in 1949. (NATO provided the United States and Western Europe with a collective defense measure to manage security risk associated with the Soviet Union and the Warsaw Pact alliance). The basic premise of the alliance is to deter and/or react to aggression against members. Of its members, the United States is militarily and politically the most powerful NATO member. During the Cold War the United States formed the backbone of NATO military operations. The original 12 member states have expanded to the current 28 members, incorporating most former Warsaw Pact states[7] and three former Soviet republics including Estonia. As in any organization, NATO membership entails costs and obligations, as well as privileges and benefits.

NATO Charter Article 5 stipulates that any attack on a NATO member is constituted as an attack on the organization and must be repelled by all members. However, Estonian

[6] Estonian Presidential Portal 2010.
[7] NATO 2010.

membership in NATO has been seen by some as lulling Estonian policymakers into a false sense of security based upon a reliance on immediate implementations of NATO Article 5 in case of attack.

For a small nation like Estonia where one can drive across the country in 4 hours any successful conventional attack would be difficult to reverse. Critics of current policy cite this time critical element related to NATO Article 5 implementation. Former Estonian military officer and, defence and security issue correspondent Leo Kunnas has written several articles, one listing 35 problems with Estonian foreign and security policy and another article entitled "NATO weakens – what to do". [89] Both articles reinforce self-reliance through a credible self-defense in addition to eventual NATO defence plans for the Baltic. Among the recommendations in these articles are increased military expenditure, establishment of a tank regiment, equipment modernization, increased military preparedness and increased troop levels. All of these proposals are meant to fill the "30, 60, or 90" day gap which NATO may need to assemble a conventional defense of Estonia. Such local Estonian military capabilities are seen by Kunnas as sharpening NATO deterrence by increasing the costs of aggression and buying time for a NATO response.

Concern over the timely implementation of NATO's Article 5 regarding any aggression against the Baltic States was a point of contention in the March 6, 2007 Estonian pre-election debates. Regarding NATO readiness to invoke Article 5 and defend Estonia, Green party security expert Eerik Niiles-Kross asked Defense Minister Aaviksoo "To get there is a long road, beginning with political decisions and in the meantime how does Estonia make do during this period?".[10] Kross' concern about Estonian overreliance on the swiftness of NATO Article 5 was affirmed by Aaviksoo's answer as "NATO's defense plans are not a point of contention. NATO has always had these plans" to which Kross again asserted his concerns that "Strategic analysis shows that Russia is not what we would like it to be. If the current Estonian 'comfort zone' foreign policy continues in its dreamy state, it may happen that we eventually find ourselves in the same security zone as Vladivostok".[11] Estonian elections debates do seem to reflect an Estonian preoccupation with security related issues.

Estonian foreign and security policy debate did not end with NATO membership. NATO is perceived by some Estonians as a foolproof deterrent and by others as only a part of an overall security arrangement which includes a credible local military defence and the inclusion of the EU as a factor. Nevertheless, there is still concern in Estonia about the swiftness of NATO defense plan implementation for Estonia should the need arise.

NATO's Article 5 clause was empirically defined in the aftermath of the April 2007 Bronze Soldier incident in Tallinn. The relocation of a Soviet era Bronze Soldier monument in Tallinn, Estonia caused an international commotion for Estonia, the EU, NATO and Russia. In May 2007 Estonian computer networks and infrastructure experienced Dedicated Denial of Service (DDoS) attacks crippling government and private communications capabilities. The attacks were suspected but not fully confirmed to originate from official Russian sources and have been described as the first case of "cyber-warfare" in international relations. NATO's reaction was swift

[8] Eesti Ekspress 2007.
[9] Eesti Päevaleht 2007.
[10] Vaba Eesti Sõna 2007.
[11] Vaba Eesti Sõna 2007.

and Estonia received immediate support and reassurance when NATO "dispatched some of its top cyber-terrorism experts to Tallinn to investigate and to help the Estonians strengthen their electronic defences. "This is an operational security issue, something we're taking very seriously," said an official at Nato headquarters in Brussels. "It goes to the heart of the alliance's modus operandi."[12]

NATO did not point a finger at Russia concerning the "cyberwarfare" campaign against Estonian computer networks in May 2007 but immediately responded with assistance. The incident helped define the limits to the contemporary definition of attack under Article 5 of the NATO charter. Deterrence through increased uncertainty for aggressive states remains a major factor in the appeal of NATO membership and the Bronze Soldier incident showed that NATO would respond to member states undergoing unconventional forms of attack in a like manner. A cyber attack was answered in kind with a cyber defense. A signal of NATO vigilance was communicated amongst its membership and to regional stakeholders, However, this incident was indicative of the changes in the security landscape and the impacts of these changes on an antiquated NATO Strategic Concept.

In November 2010, NATO member states convened at the Lisbon Summit and crafted a new 10 year (forward looking) Strategic Concept. The stipulations of the Strategic Concept include language and points which reflect a broadening of the NATO mandate and field of operations. Some parts of the document sound almost preemptive in nature.

For instance, points 22 and 23 of the Strategic Concept document state that:

> "The best way to manage conflicts is to prevent them from happening. NATO will continually monitor and analyse the international environment to anticipate crises and, where appropriate, take active steps to prevent them from becoming larger conflicts. 23. Where conflict prevention proves unsuccessful, NATO will be prepared and capable to manage ongoing hostilities. NATO has unique conflict management capacities, including the unparalleled capability to deploy and sustain robust military forces in the field."[13]

NATO has therefore evidently adopted conflict management and crisis prevention as areas of alliance interest. These once were considered UN responsibilities and to a lesser extent advocated and supported by the EU (EU Bosnia-Herzogovina policing mission). However, clear definitions of "conflict", the size of any such "conflict", "crisis", or "prevention" are not circumscribed. The post-Cold War international environment is characterized by a dominant United States, unconventional and asymmetric security issues, a twofold expansion of NATO member states, and changing NATO mandate and fields of operations. The NATO Strategic Concept document reflects these realities but vigilance continues to be exercised by member states whose interests lie in maintaining acceptable risk and reward characteristics associated with their individual security strategies. These are the vicissitudes of membership in alliances and organizations with shifting security threat definitions and conceptualized strategies.

International relations theoreticians such as Waltz have pondered individual state interests in alliances by stating "In fact, if not in form, NATO consists of guarantees given by the United States to its European allies and to Canada. The United States, with a preponderance of

[12] The Guardian 2007.
[13] NATO Strategic Concept 2010, pp.6.

nuclear weapons and as many men in uniform as the West European states combined, may be able to protect them; they cannot protect her."[14] Perhaps the latter concern voiced during the Cold War doesn't capture the totality of the institutional dynamics of NATO. If, as Waltz complained, the security benefits were flowing one-way, then it would not have made any sense for the United States to foot most of the NATO bill. We must assume the United States had an encompassing interest in the institution of NATO during the Cold War. There must still be some valid transcendent reason for NATO to extend membership to smaller states like Estonia separate from the specific considerations of the Cold War.

As the title "*Toward a Global Security Web*" indicates, the former United States National Security Advisor Zbigniew Brzezinzski, an astute observer of international relations, argues that larger systemic changes are occurring. The article in *Foreign Affairs* argues that NATO is evolving towards an international collective security system. An expanding mandate and global fields of operation entail costs and commitments which lead to the negotiating intersection over member benefits and obligations, and extends to overall "utility" for each individual member state and to the organization as a whole.

Academics have added to the debate with burden-sharing studies. Kim and Hendry found in their study "Using DEA to Assess NATO burden-sharing" that Canada pays in more than other NATO members. These types of research attempt to answer the age-old concerns of "fairness" and "free-riding" in collective endeavors such as alliances.

In his research on NATO burden sharing, John Oneal tests the logic of Olson's collective action argumentation[15] and finds that the United States has an encompassing interest in NATO and therefore provides disproportionate resources to NATO upkeep. Even though the article was written before the dissolution of the Soviet Union, and NATO's post-9/11 conceptual "southward" turn, the highly predictive results attest to the significance of Olson's theoretical intuitions in explaining forms of collective action behavior in alliances like NATO.

This 1990 article was very prescient in that the conclusion states "the logic of collective action indicates that the United States should bear a disproportionate share of allied defense expenditures as long as it believes that its security depends upon NATO, But movement toward economic and political union in Europe undermines these conditions" and further "Continued progress in European integration is also apt to raise expectations in the United States that the Europeans will make greater contributions to the alliance."[16] The EU is currently building a collective security system through a Common Security and Defense Policy (CSDP) which supports the EU's Common Foreign and Security Policy (CFSP). Despite this fact, burden sharing remains a contentious issue between, as well as within, NATO and the EU.

[14] Waltz 1979, pp. 169.

[15] Concisely explained Olson's theory concerns the issue of group provision of collective goods like security. The larger the collective the higher the incentive to free-ride with anonymity leading to eventual underprovision of the collective good. Another intuition of Olson's is how free-riding is acceptable if a collective good is provided by an actor with an encompassing interest in managing the status quo. An example is how grudgingly, the United States serves as the chief benefactor of NATO alliance burden.

[16] Oneal 1990, pp.420.

American policy think tanks such as The American Enterprise Institute (AEI), Heritage Foundation, and the Foreign Policy Initiative have produced studies on defense spending and NATO burden sharing. Most of these think tanks are of the opinion that the United States should not disproportionately shoulder the burden in the new NATO operating environment.

Frustration with perceived European NATO member "free-riding" is highly evident in top American think tanks like the American Enterprise Institute. In an AEI *European Defense Reform* bulletin on defraying NATO burden, especially in "lower-order perils and out-of-area operations", the author suggests financial incentives so that "the more robust a country is in pursuing NATO objectives, the more money it would have for modernizing its military. Instead of offering excuses, countries would have incentives to queue up for missions."[17] Clearly, some US think tanks still believe financial incentive is a foolproof method in getting other countries to support NATO objectives.

However in the very same article, after complaining about the failure of paying regimes that don't contribute, the author proposes the same failed remedy of paying states financial incentives. Highly relevant to the Egypt of 2011, the author writes:

> "It is a paradox that the United States spends billions of dollars annually sustaining allies in the Middle East, but when it finds itself fighting a tough insurgency in that very region, not a single soldier from those countries is available for support. If two or three divisions from poorer European countries were deployed for a fraction of the funds that Egypt gets for doing nothing, this would be cost-effective, pedagogical, and transformation-friendly."[18]

Skepticism over NATO goals and shirking contribution to these goals is not limited only to poor European nations or an Egypt formerly led by Hosni Mubarak. It appears that some wealthy European states are following their preferences and are wary of NATO "mission creep" and associated burden sharing. Norway is an example whose avoidance of Iraq was noticed in Washington. Other states like Estonia are diverging from their European NATO counterparts by increasing military expenditures. Burden-sharing still remains a priority topic within NATO and to a lesser extent the EU.

The current conflict in Libya, and NATO and EU actions there, provide an example of the burden sharing contentions that can arise from alliance membership. The recent UN backed aerial intervention in Libya has exposed the complexity of institutional security commitments and obligations between NATO and the EU and within each respective organizations' cross-listed membership. The Libyan intervention has shown the extent of NATO's expanded theatres of operations from those initially designed to deter Soviet aggression in Europe to those farther afield which is reflected in the institutional rifts in NATO over obligations.

Disagreements between NATO and the EU, as well as amongst NATO, EU, and both NATO/EU member states over the extent of involvement and the division of labor is indicative of risk management behavior across individual states' preferences within these institutions. "At a European Union meeting in Luxembourg, Paris lamented the limited U.S. military role in Libya and chided Germany, too, for its lack of involvement. French Defense Minister Gerard Longuet

[17] AEI Outlook 2004.
[18] AEI Outlook 2004.

complained that France and Britain were carrying "the brunt of the burden."" and further "Germany does not take part in NATO's military airstrikes in Libya because it sees the operation as too risky. Italy also has been reluctant to get involved in the airstrikes because it had been Libya's colonial ruler. The reduced U.S. role since NATO took over command on March 31 has clearly affected the operation."[19]

It seems that NATO and the EU agree, and each respective institution's security policy has accommodated, the goal of removing Colonel Gadaffi from power in Libya, but the risks and burden share are still contentious issues amongst the membership. Political, financial, military or security related risks within institutional relations seems to be a key concern for NATO and EU members in non-defensive operations such as the Libyan affair, where member salience to the issue can be deduced to be low as confirmed by the infighting over obligations. Reducing risk by joining clubs makes sense if advantages weighed against disadvantages are attractive. A state with many obligations and possible conflicts of interests between organizations might behave as the NATO and EU stakeholders in the Libyan cause.

One common trait experienced by both organizations is that most NATO and EU states have decreased military expenditures in recent decades. "NATO and EU missions are hampered by low defense budgets among almost all the states of both organizations. "For decades, successive secretary generals of NATO said defense budgets are too low to do the things we have to do," said Appathurai, the NATO spokesman. De Hoop Scheffer said that 7 of the 26 alliance members were meeting the benchmark of spending 2 percent of gross domestic product on defense" and "Valasek of the Center for European Reform said there were few signs that the finance ministries of NATO or EU countries were willing to increase spending."[20] Mancur Olson's theory of collective action would predict such "free-riding" behavior in large collectives like alliances and unions. Estonia however has bucked the trend and "increased military defense expenditures from 1.5 per cent of GDP in 2000 to 1.88 per cent of GDP in 2009, only slightly under the 1.9 per cent laid out by the Defence Plan 2005-2010 with the government's stated goal to achieve a level of defence expenditure equal to 2 per cent of GDP". [21]

Military cost/benefit relationships within NATO and the EU are an increasingly difficult and divisive issue for individual member states as reflected in the following statement by Estonian Minister of Defence Aaviksoo, "During the past few years we have worked actively in NATO to save on joint expenses, but we must admit to ourselves that this is merely practical advice. In our strategic plan we must increase Europe's defence expenditure".[22] Lobbying for increased defense spending seems to be contrary to the efficiencies of collective defense and organizational military procurement which should benefit from economies of scale.

This strategic lobbying for increased European defense spending serves two purposes for Estonia. First, it appeases US interests to spread out the burden of NATO costs. Second, increased EU military muscle strengthens the EU's Common Security and Defense Policy (CSDP) thereby buttressing EU Common Foreign and Security Policy (CFSP). That in turn strengthens

[19] Associates Press - Atlantic Council 13 April 2011
[20] The New York Times 20 September 2007.
[21] IHS Jane's 2010.
[22] Estonian Ministry of Foreign Affairs 13 October 2010.

Estonia's regional security. This twofold position on expenditures benefits Estonia in US eyes and advocates European hard security regionally. However, the dilemma for many other states attempting to wear a NATO and EU helmet simultaneously is apparent.

2.2 EU Common Security and Defence Policy (CSDP) and Common Foreign and Security Policy (CFSP)

Subsequent to joining NATO, Estonia became a member of the European Union in May 2004. The European Union is still in the process of planning a Common Foreign and Security Policy (CFSP).

The Common Security and Defence Policy (CSDP) (formerly the European Security and Defence Policy - ESDP) was incepted at the Cologne European Council in June 1999 as the operational and logistical part of the European Union's Common Foreign and Security Policy(CFSP). The current agreement under the Lisbon Treaty seeks to harmonize EU foreign policy and security posture while still allowing flexibility for individual member states in accordance with their individual security commitments and circumstances. The Treaty has a Mutual Defense Clause which is akin to the Article 5 of NATO's mutual "collective security system"[23]

The European Union's Common Foreign and Security Policy (CFSP) is supported militarily by the Battlegroup Concept which was operationalized on the ground in January 2007. The Battlegroup Concept "provides the EU with a specific tool in the range of rapid response capabilities, which contributes to making the EU more coherent, more active and more capable."[24] Capability to execute policy in the field is still the key to negotiation and fulfillment of strategic security goals.

The Lisbon Treaty of 2009 saw the creation of two new posts which give the EU improved security and foreign policy coordination for both members and external actors. These two new posts, the President of the European Council and the High Representative for Foreign Affairs and Security Policy, are supported by a newly established diplomatic structure called the European External Action Service or EEAS. These new structures all form the external interface of the CFSP and the internal coordination platform for Member State diplomatic services. These offices in turn rely on the Battlegroup Concept and member state military, police and security services for execution, implementation and enforcement of EU foreign and security policy decisions.

2.3 NATO and EU Coexistence

Even though, the EU and NATO have cross-listed membership rolls, this does not presuppose consensus by those states on all issues, nor does it minimize the role of bargaining and negotiation between individual member states within each organization, or between the organizations. The EU and NATO are organizations with distinct as well as overlapping interests including security and these distinctions may present conflicts of interest for states with membership in both institutions. Despite the fact that both institutions have common members both

[23] Wessel and Bopp 2008.
[24] EU ESDP Brief February 2009.

institutions exhibit some semblance of competition or suspicion. This can perhaps be attributed to the fact that NATO has in its membership a self-interested superpower from the other side of the Atlantic in the form of the United States, or that the EU is more pluralistic. In an interesting research piece having to do with structure and security competition between the EU and NATO, the researcher states how "closer ties between the EU and NATO could adversely affect EU security autonomy.[25] Recently, with the end of the bipolar Cold War, there is disagreement amongst political leaders as well as academics regarding the extent of each organization's geopolitical engagement to maintain security or how threats and security are defined for both institutions and reconciled for all individual participants.

On March 22, 2010 at Harvard University's Kennedy School of Government Estonian President Ilves alluded to a great gap in NATO-EU communication over policy objectives and stated further that "You cannot even talk to yourself about NATO things and EU things".[26] The awkward, disconnected and seemingly schizophrenic environment in which a post-Soviet NATO and an emerging EU are trying to find their place in the world is apparent.

NATO has adopted an arguably American post-9/11 inspired "preemptive" posture, moving from securing Europe and the North Atlantic, to a broader mandate and a "southward" turn to new fields of operation in Afghanistan, Iraq and as of March 2011, Libyan airspace. These expanded fields of operation seem to be increasingly linked to US interests and primarily weighted to American security preferences as evidenced by rifts in NATO ranks. For example " Even though Norway is a NATO member, the USA is less and less interested in NATO's Nordic dimension, and Norway's refusal to send troops to Iraq didn't help transatlantic relations. But some warn that Norway will need other friends and allies in order to withstand Russia's resurgence."[27]

In NATO's recent foray in enforcing the United Nations no-fly zone over Libyan airspace discord amongst European NATO members over the aims and goals of such an involvement is further evidence of individual state interests still central to security management decisions. These adjustment tactics are referred to by some as "Euroskepticism" but must be relegated to the concept of "hedging" in risk laden security management within the institution. Skepticism can include the possibility of risk free and cost-free opinionating. "Hedging" as a concept is appropriate when reputation, blood and treasure are at risk. Discord and rifts are indicative of "hedging" within alliances by member states attributable to divergences of security interests and preferences.

This intra-NATO European "hedging" behavior is further echoed in a statement by European research Daniel Keohane in the Atlantic Council's website where he states "Europe's public support is falling in part thanks to the draining Afghanistan campaign and the unpopular Iraq war. Many Europeans no longer want to follow the U.S. on military operations if their core security interest is unclear or if they think they have little say over strategy. That is mirrored in dwindling defense spending. Even with their Afghan commitments, total defense spending among NATO's European members fell from $311 billion in 2001 to $272 billion in 2009."[28] It would seem that

[25] Ojanen 2003, pp.31.
[26] Harvard University Belfer Center lecture 22 March 2010.
[27] Luxembourg Institute for European and International Studies Small States Conf. 2008, pp. 15.
[28] Atlantic Council 2010.

individual state preferences are taking precedent in EU and NATO relations and that a reformulation of core security interests and mission is necessary for each umbrella organization.

Evidence of differentiation in individual states preferences is seen in examples from Norway and the Baltic states. Norwegian "hedging" behavior in accordance with their individual state preferences is explained, "In terms of the future, Norway is pursuing a policy of strategic positioning vis-à-vis it's most important neighbours and partners."[29] Norway as a NATO member and a non-EU country is leading the way in a new security landscape by attempting to adapt to changing conditions and bridging the vacuums or excesses of NATO and EU security coverage.

This Norwegian example of differentiation of states' individual interests seems to be ubiquitous. A Baltic row developed between the presidencies of the Baltic states over a Wikileaked document that exhibited Lithuanian security negotiation interests taking precedent over its Baltic neighbors, Estonia and Latvia. [30] If NATO is subject to these tendencies then how does the EU intend to accommodate individual member states' security interests in a general sense?

The EU has lately been concentrating on formulation and manifestation of a coherent foreign policy and security structure through the CFSP. This recent evolution is still regional in policy orientation and European in character. Currently, the only peacekeeping mission of the EU is in Bosnia and any EU states involved in Afghanistan or Iraq fall under NATO's ISAF or Partnership for Peace (PfP) programs.

European researcher Daniel Keohane contends "There is something rotten in the state of EU-NATO relations." because "Both organisations would benefit from working closely together on a range of security issues, from counter-terrorism to the proliferation of weapons of mass destruction. But when NATO and EU ambassadors hold joint meetings, they discuss only 'joint EU-NATO operations' - of which there is just one, in Bosnia - and military capabilities. A whole raft of other important subjects, such as Afghanistan, Iraq and Darfur are off their agenda." [31] The writer provides little reasons into why both organizations' interests would be served better other than that the EU and NATO should follow the writer's suggestions. The only concrete reasoning as to why both organizations should combine efforts is to save on logistical costs.

Despite trying to paint EU and NATO interests as similar, Keohane concedes in a subsequent article that "In global terms, the regions most at risk from terrorism in the future will be the Middle East (including North Africa) and Asia (South and Southeast Asia)."[32] The Unites States is more heavily involved in these two regions of the world than the EU. Following this same logic, divergent NATO and EU security interests, result in different policy preference manifestations. In fact some researchers have characterized the preferential divergence of these organizations as "welcomed competition"[33] in security politics.

In this regard, interesting food for thought was provided in a lecture led by Finnish Ambassador Jaakko Blomqvist at an Atlantic Council lecture, in which he was asked by a lecture

[29] Luxembourg Institute for European and International Studies Small States Conf. 2008, pp. 15.
[30] The Lithuanian Tribune 2010.
[31] Keohane 2006.
[32] Keohane in Estonian Security Handbook 2008, pp. 99.
[33] Ojanen 2003.

participant to identify an instance where a European entity provided a counterweight to American political action abroad. The discussion led to the idea that European states mitigate American decision-making domination in NATO by joining and influencing decision-making from within the organization. [34] This sentiment is further echoed in President Ilves' statement "that NATO membership has enabled Estonia to sit at the table where the most important decisions affecting European security environment are made. And not only sit but shape those decisions." [35] Sitting at the table has its advantages as well as its responsibilities.

Despite the fact that President Ilves was speaking in Finland, and might have been "showcasing" NATO to a Finnish audience where Finnish public debate has turned to consideration of NATO membership, his statement does emphasize the importance "to sit at the table" where decisions are made. These evidences highlight the empirical importance of overlapping NATO and EU memberships and their influence on collective foreign policy decisions. This discussion brought up the empirical relevance of decision-making and deterrence as vital components inside, as well as outside the organizations.

The discussion also brings a different take on the actual dynamic of "conventional deterrence"[36] espoused by researchers like John Mearsheimer. The notion that an alliance like NATO, formed for collective defense and deterrence of external threats, also provides a coordination device where internal deterrence occurs is fascinating. The ability for small member states to aggregate amd mitigate, or looked at differently, actually internally deter or shape a larger more powerful states' natural instincts to shape decisions unilaterally is also a quite fascinating spin on the idea of "deterrence. Blomqvist's and Ilves' forays into the subjects of decision and power negotiation dynamics within organizations further gives relevance to the decision-based expected utility forecasting model used for this research because the model incorporates these dynamics as part of the analysis.

Suffice it to say that decision-making within institutions like the EU and NATO is still largely shaped by individual state interests and preferences whether these are "narrow self-interests, which may sometimes lead to disagreements over policy options"[37] or broader interests. These organizations are not monolithic structures and this is seen in their complex membership dynamics.

2.4 NATO and Russian Contemporary Coexistence

In his lectures, former Finnish ambassador Jaakko Blomberg described the triangular nature of transatlantic negotiations at work in the post-Soviet security environment which consisted of the United States, the Russian Federation, and third parties which could have included Western European states as well as former Warsaw Pact or former Soviet states such as the Baltic States. While the Baltic states worried about higher level dealings between the US and Russian, and a Russian "veto" on Baltic accession to NATO, the United States "viewed the Baltic situation as a litmus test for Russia's post-Soviet political posture".[38] The United States in a logical strategy aimed at European states, hinted that "it could not extend membership to southern European states

[34] Blomqvist lecture 2011.
[35] Estonian Presidential Portal 2008.
[36] Mearsheimer 1983.
[37] Estonian Presidential Portal 2008.
[38] Blomberg lecture 2011.

if it couldn't extend the same to post-Soviet Baltic states".[39] Whether this strategy was coercion through divulgence or counterfactual assisted coercion it could provide the basis for a good theoretical research into bluffing and "all or none" bargaining logic. It highlights the cooperation of NATO and Russia in negotiating with European states to organize former Warsaw Pact and post-Soviet states into a new security landscape.

Clinton and Yeltsin's 1999 negotiations over when to announce NATO expansion signified a point in time where the Russian and NATO interests coincided, albeit spanning different respective time horizons. The long term interests of NATO expansion were assisted by NATO's consideration of and acquiescence to Yeltsin's short term domestic political constraints. Putin at the time was in a precarious position domestically. The Russian right represented by Gennady Zyuganov was calling Yeltsin and Putin as being "soft" on NATO and pointed to NATO expansion as evidence of their weakness. The negotiating posture of Clinton indicates that the US administration at that point in time valued Russian domestic political moderation and stability over announcements of NATO expansion unilaterally. In terms of payoff, delaying announcement of NATO expansion was well worth avoiding a strengthening of Russia's revanchist reactionary opposition in the 2000 Russian presidential elections. Clinton's agreement with Yeltsin to postpone NATO expansion announcements secured Putin a larger election victory margin after which NATO expansion was publicized. Yeltsin's case was a classic instance of an executive dealing with internal and external constraints to preserve his powerbase domestically while maintaining satisfactory foreign relations.

If Yeltsin-era Russia would be considered a fledgling liberal democracy, then Putnam's two-level agency model[40] is applicable. The model is based upon an agency which simultaneously builds domestic coalitions while conceding as little as possible on the international level. However, in a twist to the above described agreement, and an inversion to the logic of the model, Yeltsin as an agent, put his own short term domestic political interests (which coincided with Clinton's long term interest in a stable but weak Russia), over Russia's long term interest of preventing increased American influence in Europe through NATO expansion. Although they were nominal competitors, Clinton and Yeltsin engaged each other to buttress Putin's chances domestically in exchange for less long-term friction between Putin-led Russia and the US over NATO expansion.

Median voter based models would probably provide a more appropriate research framework than Putnam's two level agency model to study the Clinton-Yeltsin-Putin-Zyganov 2000 Russian Presidential election case because the bargaining was over election outcomes. In essence, the Clinton-Yeltsin negotiations to postpone NATO expansion announcements until after the elections was a bid to keep the median Russian voter closer to Putin and not shift the voter distribution towards reactionary's such as Zyganov by hastily announcing NATO expansion before the elections. Clinton and Yeltsin preferred Candidate P over Candidate Z and they maintained or possibly increased the probability of Candidate P's election victory by agreeing to postpone an announcement.

[39] ibid.
[40] Putnam 1988.

In any event, according to Ambassador Blomberg, the current state of relations between NATO and Russia are characterized by "the United States with NATO behind it, cooperating with Russia on issues where each party's interests overlap".[41] This is still an apparent continuation of the state of affairs from the days when Clinton and Yeltsin's interests "overlapped" and they agreed to announcement of NATO expansion subsequent to the Russian presidential elections of 2000. Confirmation that actors' actions are still shaped by their respective interests under dynamic operating environments with different conditions and constraints is readily apparent in post-Soviet NATO-Russian relations. The year 2000 was a period of time where larger structural relationships determined the geopolitical and security future of Estonia. Today Estonia has in increased presence in the structural relationship between NATO and Russia by virtue of its' membership in the alliance and its' geographical position on the Russian border.

3. Heuristic Departures and Problematization

3.1 The Trading Floor, Risk and Hedging

The trading floors, open outcry "pits", and virtual "platforms" of the financial world are negotiation forums where unitary traders or groups of traders meet to engage in trade. These market participants may have diverse strategic or tactical reasoning as to why they come into the markets but exposure to or management of risk are the staples of their market negotiations. A financial market is created by the trading actions and reactions of traders in financial products – stocks, bonds, futures, options, spreads, swaps, and all sorts of exotic derivations thereof. The financial markets provide a structure which constrains traders through price and time, exposes them to reward and risk of loss, but also provides them with "space" to maneuver.

Traders manage risk through "hedging". One definition of "hedging" in finance is "a means of protection or defense, especially against financial loss; or a securities transaction that reduces the risk on an existing investment position".[42] According to the Economist glossary, a "hedge" is defined as "Reducing your risks. Hedging involves deliberately taking on a new risk that offsets an existing one". [43] "Hedging" is the strategic or tactical behavior to manage risk in finance. The "hedge" is the manifestation of that behavior.

A simple example of a "hedge" in the financial markets could concern an investor in Nokia shares who wants to speculate in Nokia stock but wants to limit her "downside risk" or losses if Nokia shares fall in price. She wants to "hedge" her Nokia position so she is looking for a "hedge" for her Nokia stock position. To do this she would be interested in a financial instrument that would be inversely correlated to the Nokia share price. In other words, she wants a financial instrument, in this case "put options", whose price would rise if Nokia share prices fell. She buys the "put options" proportionately to cover her stock position and the downside risk associated with that stock position. The purchase price of this "put option" includes a risk premium which reflects the volatility and probability over time that a fall in Nokia share price could occur. If carefully tailored to the situation, should Nokia's share price drop, the rise in price of the "put options" could offset all or most of the loss in her Nokia stock position attributed to a falling Nokia share price.

[41] Blomberg lecture 2011.
[42] American Heritage Dictionary 1991.
[43] The Economist Glossary 2009.

Unlike insurance which is long term and legally contractual, many financial "hedge" products are dynamic and nimble instruments, short to medium term, easily bought and sold, more easily underwritten, and for unconventional "over-the-counter" (OTC) instruments, entail more "counterparty" risk. Much of these instruments are traded in liquid markets. Financial derivatives entail higher risks such as those at the bottom of the Credit Default Swap (CDS) inspired financial meltdown of 2008. Buyers of those "hedge" instruments found that the seller, or "counterparty", was insolvent and unable to make good on the terms of the instrument. Many purchasers of these over-the-counter CDSs experienced counterparty risk to the tune of hundreds of millions of dollars lost.

3.2 Conceptualizing and Differentiating "Hedging" and Defining the "Hedge" in International Relations

If "hedging" and "hedges" are to be conceptualized in International Relations literature these must be differentiated from "plain vanilla" standard commercial forms of insurance such as life or property insurance which are contractually based and legally enforced. There is no standard international enforcement mechanism governing alliance treaties through which states "hedge" their security position. Like financial "hedges", security "hedges" imply more risk because of the uncertainty of expected outcomes most notably counterparty risk.

Life insurance pays out upon the death of the individual insured and listed on the life insurance contract. Home insurance compensates upon total destruction of the insured's domicile by fire or by flood. Recently, less flood insurance has been underwritten in America subsequent to giant losses by insurance companies from huge natural disasters like Hurricane Katrina. These companies fulfilled their obligations by paying the claims of the underwritten policies they sold because of government regulated reserve requirements to cover losses. It has become more difficult to find affordable property and flood insurance on the Gulf coast subsequent to Katrina. The risks associated with underwriting flood insurance have outweighed the premiums which attracted insurance companies in the first place. Alliances such as NATO and supra-political institutions such as the EU exist in unregulated international space and are in practice non-enforceable. This is due to the fact that abrogation of treaties between states cannot be adjudicated because there exists no high supranational court with legitimacy and enforcement power. States must negotiate the terms of treaties and sometimes, as evidenced by the Molotov-Ribbentrop Pact, manage the catastrophic consequences of treaty abrogation. Despite this states still associate with institutions for various reasons including security. Who pays out if a nation is annexed by another nation?

Some ordinary people may buy gold as a "hedge" against future uncertainty during times of war, and bleak political or economic outlooks. Why buy gold? In a world of currencies and bonds backed only by the full faith and credit of governments, gold provides a ***tangible*** real value medium. During volatile times of war and turmoil, paper assets and currencies might end up being not worth the paper they are printed on. Once people feel more secure about their future prospects they may sell or decrease their gold "hedge". What if your "hedge" is not solid gold but like financial derivatives consist of expectations of performance or commitments to pay?

Like individuals, states adjust their interest-based security behaviors to actual or perceived risk. The behavior of France regarding involvement in NATO has followed similar risk

"hedging" behavior. Once Europe was stabilized after WWII, de Gaulle withdrew a nuclear enabled France from NATO in 1966 saying it undermined French sovereignty. Apparently the risk to nuclear bolstered French sovereignty outweighed the utility of NATO under those international conditions and at that point in time. Perhaps a newly nuclear France with Germany as a buffer between it and the Warsaw Pact was enough to prompt France to drop its NATO collective security "hedge" and withdraw from the NATO military command table. France returned to NATO in 2009 under Sarkozy who stated "We have to be progressive. A solitary nation is a nation that has no influence whatsoever."[44] Perhaps from 1966 to 2009, at least for France, a solitary nation was less progressive but had more influence. France followed its security preference by getting into NATO, then jumping out and back in, just as a financial trader would adjust her position risk by nimbly buying or selling a "hedge" instrument. Here in the French NATO example it can be seen that both financial and security "hedges" are dynamic instruments which consist of expectations of performance and commitments to pay should some event occur. Whether the event be a drop in share price or a challenge to a state's security is not as important as the fact that it is predicated on the occurrence of a loss inducing event.

In International Relations and security literature the terms "hedging" and insurance have been used analogously, being comingled and interspersed sometimes even in the same article. For instance, in an article entitled "Strategic Hedging and the Future of Asia-Pacific Stability" the author writes, "the United States has chosen to hedge its security bets by adopting both cooperative and competitive policies towards China's rise in Asia, resulting in a geopolitical insurance strategy of sorts." [45]

Traditional commercial insurance is contractual and legally enforced. Aside from the actuarially calculated probability of an event happening, say the death of a 39 year old white American male non-smoker , as in the case of life insurance, nothing is left to chance over the payout in the event his death. Insurance and reinsurance companies have reserves to cover insurance claims. Furthermore, the insurance industry and state regulators monitor industry practices to minimize non-payment risk due to underwriter insolvency, bankruptcy or catastrophes. Insurance is not analogous to "hedging" in international relations where no regulatory, arbitration or enforcement mechanisms exist, other than bargaining power, diplomatic negotiations and the importance to the stakeholders of the issue being negotiated. A more appropriately tailored concept such as "hedging" and a definition of "hedge" is required if this different security management behavior is to be utilized in International Relations and Security studies research literature .

Referring back to previously cited Medeiros article, the author explains that the United States is "hedging its security bets", meaning the US makes security bets and then hedges these bets with policies to counter a stronger China. If, as the author writes "The United States and China are shadowboxing each other for influence and status in the Asia Pacific" this presumes that the US and China are competitors. If security bets are made to reduce security risk associated with a rising China then policy positions made to "hedge" those security bets are simply "hedges of a hedge". The "true hedge" is then the actual security bets made by each side which the author touches upon by stating that "driven by China's ascending role in Asian security and economic

[44] BBC 12 March 2009.
[45] Medeiros 2005-2006, pp. 145.

affairs and the U.S. desire to maintain its position of regional preponderance, policymakers in each nation are hedging their security bets about the uncertain intentions, implicitly competitive strategies, and potentially coercive policies of the other."[46]

The concept of "hedge" in this research project is differentiated from "the hedge" in the Medeiros paper. The hedge in the Medeiros paper is a "hedge of a hedge", stated "To hedge, the United States and China are pursuing policies that, on one hand, stress engagement and integration mechanisms and, on the other, emphasize realist-style balancing in the form of external security cooperation with Asian states."[47] This research on Estonia shall separate security bets represented by formal NATO and EU institutional linkages from policy dialogue. The research will concentrate on the actual "hedges" and not the dialogue which can be interpreted as qualifying or "hedging" the actual institutional "hedges".

"Hedging" and "hedging" are appropriate terms not only in finance but applicable to International Relations research because these terms are associated with probabilities of a loss inducing event happening and, if invoked by such event, some compensating effect is expected to counter the loss. Implications of probabilities are calculated and considered by decision-making people, groups and states every day. The Economist's definition that "Hedging involves deliberately taking on a new risk that offsets an existing one"[48] is quite fitting to the Estonian situation. The risks involved in "hedging" security with NATO and EU memberships counter the risks of neutrality in a geographical area of historically substantiated regional domination by Swedish, German, Tsarist or Soviet Russia. The purpose of the research here is to differentiate and actually focus on the security "hedges" and use a forecasting model to conceptually differentiate "hedging" by identify attributes of the "hedges" for Estonia and all stakeholders.

Traditional realist balancing is descriptively simple but conceptually limited. Systemic equilibrium in the realist conception is achieved through state coalitions balancing each other as if on a simple weighing scale. What if a state has relationships with many coalitions for varied reasons based upon interests, preferences and the utilities associated with these relations? The nuance of "hedging" includes the connotation of preserving individual state security utility and the possibilities of multidimensional equilibrium amongst actors based on their sometimes chameleon- like interests and preferences (see the discussion of Counterparty Risk and "gas wars" below).

The concept of "hedging" in the context of this paper is defined as acts taken to reduce security risk associated with neutrality. Neutrality for purposes of this paper is defined as a non-aligned nation's total unmitigated commitment to same nation's geopolitical and economic space including security risk. "Hedging" is the act of risk reduction and the "hedge" is the manifestation of the "hedging" behavior. In the case of Estonia, "hedging" includes the security-seeking and risk minimizing behavior of association with NATO and the EU. Same "hedging" behavior is manifested in joining NATO and the EU through memberships in these institutions whereby these formal relationships can then be referred to as a "hedge" or "hedges". A major defining characteristic of a "hedge", as a dynamic relation, is its invocation which is predicated on

[46] Medeiros 2005-2006.
[47] Medeiros 2005-2006.
[48] The Economist Glossary 2009.

an event occurring such as a loss of security attributable to a threat, challenge or dispute over a security-related issue.

The dynamic nature of a "hedge" stems from it being predicated on an event occurring and the expectation of performance should such an event occur. In a mutual defense alliance such as NATO, a threat to the security of any member is expected to trigger a dynamic reaction by the alliance to bolster that member's security. In an institution such as the EU a similar reaction can be expected. A "hedge" is verifiable through the institutional reaction and commitment performance should a threat to security of a member state occur. These institutional arrangements are expected to compensate for a "loss" of security through the provision of support from the institution to the affected member. A "hedge" , as a dynamic instrument must be inversely correlated to a drop in actual security. In essence, if a member is "pushed", the institution is expected to dynamically "push" back on behalf of the challenged member.

"Hedging" behavior excludes dialogue, communication styles and postures which can be considered to be part and parcel of normal diplomatic communications and negotiations between two states. For instance, if the United States has an "open" policy of cooperation and dialogue with China, this can be considered a friendly tone or communicative tactic, excludable from the actual "security bets" or strategic hedges made with India, Taiwan, Japan, and South Korea. The "hedge" concept in this research must include third parties in alliance formation, treaties and military arrangements because international relations are multilateral in nature.

Estonia had sent assistance to Russia in the summer of 2010 to fight raging forest fires. While this can be considered a friendly neighborly gesture, this type of "goodwill" dialogue cannot be construed as Estonia "hedging" it's security "hedges" in NATO and the EU. As Estonian governments have reiterated time and time again, their "security bets", or "hedges" are with NATO and the EU as a means to avoid bearing the full 100% security risk associated with their size, and their geopolitical and economic space in the world. This space has been historically observed to entail such risk. Pleasant gestures are wonderful but because these may be a product of ulterior motivation these must be excluded from the definition of security "hedging" and "hedges" and considered merely gestures of goodwill.

In an article entitled "Understanding "hedging" in Asia-Pacific security" the author writes "what has been referred to as "hedging" behavior is the norm in international relations – engagement and diplomacy are the staples of international life. Most states adopt insurance policies, and while they establish military relationships with other states, they avoid committing themselves to potentially antagonistic stances towards other states most of the time".[49] Again, insurance in this context does not sufficiently describe risk-reducing and security-seeking behavior in international relations where actual or perceived security threats occur and where no regulatory, arbitration or enforcement mechanisms exist.

Researchers like Palosaari and Raik allude to decision-making complexity in their description of Baltic security policy as a "twin track" referring to security strategy engagement with the EU and NATO.[50] While twin track does describe the bifurcated security procurement strategy

[49] Goh 2006.
[50] Raik and Palossaari 2004, pp. 12.

by Estonia it aims more to describe the road to the 2004 Estonian memberships in NATO and the EU. It is difficult to analogize being relegated to only two tracks if one views Estonia's membership in both institutions as ultimately determined by multidimensional and multilateral interactions of individual states' diverse interests and preferences. Norway showed that it was not "NATO track dependent" by not sending troops to Iraq. Tracks may adequately describe the coordination efforts for adherence to membership criteria on two simultaneous paths to formal membership. These pathways may become fuzzier or even evaporate once a state is within both institutions and part of each institution's decision-making mechanisms.

Insurance is a difficult idea in International Relations where there is no arbiter or higher court to adjudicate contracts or disputes between states especially in the security realm. "Hedging" is a more attractive definitional concept in international relations because like in finance, it is predicated on an event occurring such as a security threat, and reflects the dynamic multidimensional nature of states' relations, encompassing counterparty risk, probability and security risk management. Of these, counterparty risk, or the possibility that an expected institutional performance from NATO or the EU might not be fulfilled, is a most important risk a member state considers in international settings where no supranational body serves as an arbiter or provides enforcement.

3.3 Counterparty Risk in Hedging

On a massive scale, political or economic unions can fail totally, as did the Soviet Union. Military alliances can implode as did the Warsaw Pact (Treaty of Friendship, Cooperation and Mutual Assistance), leaving all involved states scrambling to adjust their security plans. Institutions can fail as did the League of Nations. States are subject to counterparty risk by fellow alliance members behaving in counterproductive manners or "not living up to their end of the bargain". Counterparty risk, or the possibility that an institutional commitment from NATO or the EU might not be honored is omnipresent. Researchers are still trying to explain why formal treaties are even made where no supranational body serves as an enforcer.[51]

Barring outright failure of a union or alliance, states which "hedge" security risk can still be exposed to counterparty risk even from within their own alliance. The recent dispute in NATO over commitments in the 2011 Libyan campaign show the possibility of rifts within a formal alliance engaged in a conflict. On a smaller scale, counterparty risk can be seen in the June 2010 "gas wars" between Russia, and Belarus. Both states are fellow alliance members of the CIS, (Commonwealth of Independent States-Содружество Независимых Государств) and CSTO (Collective Security Treaty Organisation-Организация Договора о Коллективной Безопасности). When Russia turned off the energy spigot over a customs dispute in June 2010, bitter Belarus realized the shallow nature of CIS and CSTO alliance relations.

Fellow CIS de facto participant state Ukraine readily facilitated the dispute by widening transit of Russian gas diverted from Belarus. Razumkov Center Energy Programs Director Volodymyr Saprykin said the "gas war will affect all neighbors" but Ukraine "will get some advantages" due to an increase in the volumes of gas transit via its territory rather than through

[51] Leeds 2003. pp. 428.

Belarus". [52] Ukraine might have been paying Belarus back for buying diverted gas from Russia when Ukraine had its own "gas wars" with Russia during 2005-2009.

Financial traders run the risk of the counterparty to their trade not fulfilling the obligations of the trade. Essentially, trader and counterparty, or buyer and seller, are "stakeholders" in the trade. On a massive scale, financial counterparty risk can be seen in the credit default swaps (CDS) financial crisis of 2008, where investment banks wrote billions of dollars worth of financial obligations which were never honored. When time came to pay the purchasers of same obligations the sellers of the deal were insolvent. If a trader had spread his bets or "hedges" amongst many counterparties then he might have gotten something back using the logical reasoning that every counterparty could not default. Unfortunately for him insolvency was industry wide, or "systemic". A similar example of counterparty risk in contemporary international relations is the Molotov-Ribbentrop Pact agreed and signed between Nazi Germany and the Soviet Union in 1939. The expectations of the Soviet Union for counterparty Germany to abide by the agreement were dashed by the German attack on the Soviet Union. The fruition of this counterparty risk opened the way for a systemic risk called World War Two.

3.4 Systemic Risk

Like counterparty risk, "market" or systemic risk, is also part of the vicissitudes of financial trading. The Nokia stock "hedging" example showed how a "put option hedge" protects the Nokia stock position from the short to medium term risk of adverse effects on Nokia's share price. The "hedge" doesn't cover the risk of a systemic crash where the entire stock market as well as the derivative markets in "put" options becomes non-existent or illiquid. Systemic risk is counterparty risk on a massive pandemic-like scale. A system wide failure would be a situation which would adversely affect the entire stock market and all its participants. Examples of systemic events including the Stock Market crashes of 1929, 1987, and 2008 all followed periods of speculative bubbles in shares, real estate, or financial derivatives. These crashes were so severe that market participants whose behavior led to the crashes could not manage to repair the damage and so required government intervention in the form of public programs and bailouts. Moral hazard was in introduced into the system through market participants believing that "government as a last resort" would bail them out if worse came to worse.

The difference between the political and the financial version of systemic risk is the absence of a supranational government to bailout states embroiled in World Wars. Systemic risk is omnipresent in international relations. A state may "hedge" with another alliance or counterparty to manage specific regional security risk. But what happens if alliance or treaty failure such as Molotov-Ribbentrop leads to a chain reaction embroiling all nations in total systemic conflict? The system as a whole is always subject to shattered alliances and crumbling institutions. This is what differentiates systemic risk from counterparty, local or region-specific risk. Like speculative bubbles which precede market crashes, World War I and II are examples of systemic risk in international relations because these conflict events adversely affected almost every nation in the world. The systemic risk for all global stakeholders was unavoidable in those circumstances and no "hedge" was sufficient to cover security loss.

[52] RIANOVOSTI 22 June 2010.

During periods of high political volatility, system stakeholders truly are relegated to rely on their own negotiating acumen when dealing with each other or through alliances. The strategic behavior of stakeholder states over an issue can be like a two-edged sword, both contributing to political volatility and detracting from political stability simultaneously, dependent on where each stakeholder stands on the issue. The social nature of groups of states' interest-based interactions determine the outcome for the entire system whether that be war or peace.

3.5 Estonia; Preferences, Choice, Security Risk and Hedging

"Some who are shaping Western security thinking have suggested that neutrality might be a good option for Estonia. The success of neutrality, unfortunately, has historically been tautological: it works when it has worked - and there are examples of where it has been a success. Yet there are also cases of failed neutrality. Estonia is an example of a country that tried Neutrality, and all that produced was occupation and horrors as unspeakable as we see in Kosovo today."[53] Neutral in this statement is synonymous with being unaligned politically or militarily.

In the Estonian context, outright political, economic, and security neutrality would be akin to an "unhedged" position in finance. A neutral Estonia would be 100% fully invested in its geographical, political, and economic space as well as exposed to 100% of any contingent rewards and risks. Like an investor with a position of stock in Nokia who has full exposure to business risk, a neutral Estonia would have full exposure to any security risk. For Estonia, the historical record shows this risk has originated from expanding regional powers like Sweden, Germany, and Russia. More recently this risk has been perceived as Russia and is associated with official Russian antagonism over the 2007 Bronze Soldier incident in Estonia and security echoes from the Georgian-Russian war of 2008. Russian politicization of energy supplies not only to the Baltic states but to Russian "friendly" allies such as Belarus and "post-Orange" Ukraine are other sources of concern for Estonia. Estonia has been managing this neutrality-associated risk in a complex multilateral strategy since the demise of the Soviet Union.

Traditional International Relations terminology applied to security risk management by states seeking to cover any risk associated with neutrality insufficiently describe the complex process. Terms such as "insurance", balancing, bandwagoning or buckpassing do not adequately represent the dynamic multidimensional, and multilateral behavior of states in their security management contingencies. State security strategy like financial "hedging" behavior is more complex than the traditional terminology can describe.

Security management is interest-based and depends on the divisibility of means which contribute to the execution of an overall security goal. The limitation of balancing as an effective descriptive term is the presumption of balance being the goal of systemic stability or an externality of collective behavior. Balancing brings to mind a scale or a seesaw both of which rely on a fulcrum and precisely equal weights to maintain the state of balance. What if a state has a portion of its overall weight on many scales, or on many different bandwagons? What if a state breaks a dollar into coinage and keeps some coins but divides the rest into other institutions in expectation of future performance should a threat occur? Conceptually "hedging" encompasses these interest-based realities. "Hedging" is differentiated from these other concepts due to the ability for a state like

[53] Estonian Foreign Minister Toomas Hendrik Ilves 7 May 1999.

Estonia to choose its divisible strategic relations in multiple institutions, and the centrality of security risk as the reason for this complex multilateral process. Empirical evidence shows that Estonian state behavior is more complex and nuanced than traditional IR descriptive concepts. This paper's research perspective and the use of a decision-based forecasting model which can accommodate individual state interests under dynamic collective conditions is a most appropriate vehicle to attempt to substantiate the concept of "hedging" in the Estonian security context.

A geographical and historical basis for "hedging" behavior can be established given Estonia's small size and location coupled with recent historical experience of war and occupation by a much larger Russia under Tsarist and Soviet regimes. Apparent "hedging" behavior can be seen in both public statements from Estonian governments as well as strategic choices on security policy and military procurements. In his speech entitled "The Estonian Perspective on EU and NATO Enlargement" Estonian Foreign Affairs Minister Toomas Hendrik Ilves reaffirms the central role of state interests, preferences, and choice by stating "Under the principles of the Organization for Security and Cooperation in Europe as enshrined in the Helsinki Final Act, of which both Estonia and Russia are members, every state has the inherent right to choose the means to ensure its own security."[54] Estonia has manifested its choices with EU and NATO memberships. In fact, Estonia's behavior utilizes one of the simplest methods to "hedge" risk in finance which is diversification of security relationships so that "all your eggs are not in the same basket".

States like traders deal in a real world of market constraints, volatility, price, risk, cost, time, gain and loss. The "market" for security provides states with opportunities, as well as constraints, to manifest interests and preferences, and manage security risk through alliance mechanisms, institutional relationships, treaties, diplomacy, foreign policy and military cooperation. Estonian statements and choices seem to empirically support the proposed "hedging" concept of this research.

Again, for purposes of this paper, "hedging" is defined as acts taken to reduce security risk associated with neutrality. Neutrality in the context of this paper is defined as a non-aligned nation's total unmitigated commitment to same nation's geopolitical and economic space including security risk. "Hedging" is the act of risk reduction and the "hedge" is the manifestation of the "hedging" behavior. In the case of Estonia, "hedging" includes the security-seeking and risk minimizing behavior of association with NATO and the EU. Same "hedging" behavior is manifested in joining NATO and the EU through memberships in these institutions whereby these formal relationships can then be referred to as a "hedge" or "hedges". A major defining characteristic of a "hedge", as a dynamic relation, is its invocation which is predicated on an event occurring such as a challenge, threat or dispute over an issue concerning a member.

If confirmed by this research "hedging" refers to the interest inspired and preferential actions of Estonia to offset potential or perceived security risks by joining NATO and the EU. The "hedge" concept in this research includes third parties in alliance formation, treaty commitments and military arrangements. The "hedges" are the manifestations of "hedging" behavior in the form of NATO and EU memberships which in accordance with its dynamic nature are expected to compensate for a "loss" of security through the provision of support from either or both institutions

[54] Estonian Foreign Minister Toomas Hendrik Ilves 14 April 1997.

to Estonia should it be threatened. The Estonian NATO and EU "hedges" should be inversely correlated to a drop in actual or perceived security due to threat or dispute. Empirically, this should be verifiable by observance of some security-bolstering actions performed by these institutions. The consistent framework of the forecasting model provides a means to verify and negate the "hedging" concept through identification of this beneficial inverse correlation. The model affords the capability to measure the "hedge" effect spatially relative to Estonia's preferential position on a security issue.

Normal communicative facets of negotiations between two states are excluded from the conceptual definitions of "hedging" and "hedge" in this research paper. The strategic interactions and dynamic reactions between Estonia, NATO states, EU states and third parties like Russia define "hedging" behavior in international relations.

3.6 Estonia, NATO and the EU

Does Estonia experience similar conditions to the floor trader in the risk reduction, security decision-making process? Do the constraints of the "market" for security offer any flexibility in choice to state participants? Is there "space" within the security "market" structures in international relations for states like Estonia to negotiate "hedging" options? Researchers can glean insight into political decision-making, and explain or predict state behavior when considering security options by using concepts and intuitions from game theory, decision theory and social choice.

Estonia is about as far away geographically, historically, linguistically, economically and culturally from Afghanistan and Iraq as Mongolia is from Manhattan. How can one explain the phenomenon of the Estonian military in these faraway places without considering the existence of some tangible system and logic in which such seemingly odd circumstances can occur? What costs and benefits, or "utility" can be identified from Estonia participation in expanding NATO operational theaters?

Some in the Estonian immigrant expatriate community in Manhattan might say Estonia is helping fighting every state's and security institutions' scourges; instability, insecurity, and terrorism. Others might link Estonian involvement to more complex political and economic dynamics in the NATO case; combinations of potential Russian coercion, the US self-interest inspired "southward turn" of NATO, and the current American foreign policy posture shaped by domestic special interest lobbies such as Israel[55], Oil, and Defense Contractors.

Similarly, Estonia and Bosnia Herzogovina are just as geographically, historically, linguistically, economically and culturally distinct as Estonia and Afghanistan and yet Estonia contributes to EU obligations there. What costs and benefits, or "utility" can be identified from Estonia participation in such EU security policing missions?

Some observers might say that participation in EU security and defense policy is the responsibility of Estonia as an EU member and that it is part of the cost-benefit, or "utility", calculation Estonia made in joining the EU. However, Estonian Foreign Minister Toomas Hendrik

[55] Mearsheimer and Walt 2007.

Ilves in a 1999 statement said "The EU is not a security organization and we do not regard membership in the EU as a security guarantee. Yet for over fifty years, the Union has created the non-military basis for security and stability in Europe. Indeed, I would argue that the EU has done most to add to stability in the post-communist world in the past decade."[56] Foreign Minister Ilves qualified the first half of his statement about the EU not being a security organization because if regional political and economic stability is conducive to state security then the EU must be considered a security organization also. If military security is not the attraction of the EU then why would a small state like Estonia actively seek to send some of its' renewed sovereignty and military resources to the service of a supranational body? Perhaps security comes in many incarnations. What can a person in the know tell us?

A personal interview of Rein Taagepera, professor of political science at University of California at Irvine and Tartu University, and former presidential candidate of Estonia, provided primary source insight into the nuances of Estonian regional political considerations and security strategy.

An interview with Professor Taagepera exposed some assumptions and confirmed some key considerations regarding Estonian security strategy. In the interview, he states that given Estonian recent history, "the Estonian elites realize that it would be extremely dangerous to be left hanging out alone"[57] in a post-Cold War environment. This statement alludes to some type of negotiation structure which constrains Estonian state behavior and where political and policy autonomy for a state like Estonia may be negatively influenced by other regional states. The statement associates neutrality with danger.

The interview also alludes to security concerns primarily exogenously influenced, "Russia has been somewhat antagonistic" to Estonia, and he further states "I wish Estonia had some other foreign policy goals besides thinking about their Eastern neighbor." [58] These same deterministic concerns are corroborated in wikileaked cables between US Ambassador to Estonia Michael Polt and the US State Department.[59] Perhaps based on recent experience Estonian security policy can be characterized as Russo-centric.

Aside from addressing Russia, the interview also reveals what seems to be Estonian regional security "hedging" behavior where Taagepera states that the "European Union offers one type of security, NATO offers another type, a more military security" and further, regarding Estonian EU membership "you pay in sovereignty to have minimal security.[60] The trade-offs calculations associated with Estonian security management are apparent from the statements of this former presidential candidate of Estonia.

As the former interview attests, as well as much public debate and discussion about Estonian security management prospects indicate, the concepts and intuitions within the purview of rationalist research orientations are very much suitable to research the case of Estonia, the EU and NATO. Strategic interest and preference inspired interactions between and amongst states are

[56] Estonian Foreign Minister Toomas Hendrik Ilves 7 May 1999.
[57] Taagepera Interview 2009, 3:00.
[58] Taagepera Interview 2009, 3:32.
[59] Wikileaks 2011.
[60] Taagepera Interview 2009, 9:00.

prolific streams in the security studies research literature. Power, interests, preferences, choices, risk, probabilities and constraints are all real factors at work in the security decision-making process for states. A rationalist research approach provides an efficient and insightful framework to analyze Estonian security preferences, institutions such as NATO and the EU, and choice in these international interactions.

4. Literature Review

The background material for this research draws heavily from social choice theory and game theory. Building upon the contemporary social choice and game theoretic theoretical works of Arrow 1951, Nash 1950, Black 1958, and Sen 1970, and the expected utility theorem of von Neumann and Morgenstern 1947, a theoretical and empirical research body studying the social interactions of actors has evolved. From these theoretical foundations has sprung a diffusion of both cooperative and non-cooperative model variations which study social interactions. How are these relevant to a thesis about Estonian security "hedging" behavior?

The intuitions of Arrow and Sen reveal the difficulties involved in decision making procedures where a collective result may not reflect the aggregated preferences of individual actors, voters or states.[61] If a collective outcome doesn't reflect the preferences of participants in the decision then certainly this is an unsettling paradox. For small states such as Estonia, as well as institutions such as NATO and the EU, this is crucial because it may lead to undesirable and unintended consequences or even "path dependency" with no easy way back. Game theory can help mitigate some of these social choice paradoxes.

Nash's contribution of game theory and his equilibrium logic provides a theoretical basis for understanding decision-making through assigning utilities to actors' strategy combinations and providing theoretical solutions to strategic interactions. The logic of game theory uses mathematics to help answer "if NATO does this then Russia will do this but only if the EU doesn't do this" issues. Institutional stakeholders of NATO and the EU interact strategically base upon interests with internal members as well as external actors like Russia. Game theory provides a consistent framework to study intra-institutional dynamics as well as international interactions like NATO and EU expansion to Estonia where Russia is still a regional political, economic and security stakeholder. [62]

Social choice literature centers on the fact that political parties and candidates in elections have policy positions and that this is applicable to all alliances as well. All alliance members have individual policy positions as do voters in those elections. Party candidates attempt to jostle for voter support by advertising general policy platforms. Based on public feedback and polls, same candidates adjust their statements regarding general issue positions to obtain enough voter support to get elected. These commonalities between institutions, states and voters make Black's median voter theory highly pertinent in viewing strategic interactions between states in international political negotiations. The strategic interplay of states like Estonia within organizations or alliances,

[61] Arrow demonstrates that for a small number of desirable properties , no social choice mechanism will successfully represent general societal preferences. See Saari (2001, 2008) for a reevaluation of the properties.
[62] Nash 1950.

and how member states interact amongst themselves, as well as with external states and alliances, provides natural research providence.

Contemporary alliance and deterrence research literature is divided between findings of alliances deterring war and aggression against alliance members (Leeds 2003) and alliances provoking conflict (Vasquez 1993). Alliance commitments being fulfilled have been empirically verified to the 75% threshold of all cases observed (Leeds, Long, and Mitchell 2000). However, historical case studies show that deterrence and alliance failure is still a common risk and empirically alliances do not completely ensure security (Achen and Snidal 1989). What about political unions such as the EU?

The European Union is an area of intense positivist research because of its socio-political nature and its empirical laboratory which provides case studies to verify theoretical hypotheses. Interdependence seems to be an observable EU institutional hallmark. Complex interdependence theory (Keohane and Nye 1997) hypothesizes that increased cooperation between states in many forms including institutions make states interdependent and lessens the risk of conflict. As a member of NATO and the EU, Estonian security is dependent on effective institutional cooperation now and in the future.

Positivist academic research of the EU provides further insight into the decision-making dynamics and characteristics of the EU and its members. Contingent intuitions and logics contribute to understanding the bargaining and decision dynamics of individual state and institutional decisions on EU political, security and economic issues. Relevant contemporary research on EU institutional dynamics includes EU cooperative coalition approaches (Boekhoorn, Deemen, and Hosli 2003), "semi-cooperative" EU budgetary voting politics (Pajala and Widgren 2004, Kauppi and Widgren 2008), decision-making issue-based approaches (Widgren and Pajala 2006) and decision-based expected utility approaches (Bueno de Mesquita and Stockman 1994). The EU provides an institutional laboratory to observe empirical realities and test hypothetical assumptions and intuitions.

Complementary positivist International Relations research orientations apply similar assumptions, intuitions and models to NATO as a dynamic institution. These research perspectives provide insights into NATO dynamics ranging from institutional bargaining explanations for NATO expansion (Aggarwal 2000) to rational choice-based EU membership conditionality for Baltic States (Kelley 2004). Choice and strategy are central aspects of the research orientation.

These research approaches are highly relevant to the Estonian case because they study the institutional mechanisms and negotiation processes of NATO, the EU, and the OSCE. These mechanisms and processes cover the political, economic and security policy mandates which advocate global institutional interests. Kelley's approach highlights the ability of an organization like the EU to extend Estonia membership conditionally, to be contingent upon Estonian handling of its Russian minority issue within EU legal guidelines. It is an example of organizational coercion of small state domestic politics to reduce friction between the EU and third parties such as Russia. Here choice and strategy coincide again.

Amongst practical predictive models relevant to Estonian decision-making questions are decision-based expected utility approaches (Bueno de Mesquita 2009) as well as agent-based modeling (Kugler et. al. 2006). Both approaches are highly applicable to small EU and NATO member state decision-making because these models reflect the realities of decision outcomes in international relations and institutional settings. Interested parties to decisions are referred to in the parlance of the field as "stakeholders". The empirical realities reflected in the factors operationalized by the models usually include an issue, "power" or stakeholder capabilities, "salience" or importance of an issue to the stakeholder, "resolve" of the stakeholder, and third party aggregations for or against some issue position.

The historical record attests to the fact that Estonian political, economic and security has been highly affected by other states' issue postures and bargaining powers. These other states are referred to as "secondary and tertiary stakeholders" (Kugler et.al 2006) or "third parties" (Bueno de Mesquita et al 1984) and are indisputably a part of any states' security decision-making strategy and especially vital for smaller states such as Estonia.

The positivist research orientation methodologically spans the environment in which Estonia operates as both an EU and NATO stakeholder. Estonia engages in both cooperative and non-cooperative strategic interactions with fellow EU and NATO members, as well as external actors, such as the Russian Federation. The field encompasses the research factors, assumptions and intuitions relevant to post-Soviet Estonia and Estonian security "hedging" behavior.

5. Positive Political Theory

Positive political theory is a field of political science in which political actors are analyzed in interactions using quantitatively constructed formal models. The field's inception can be attributed to William Riker in his 1962 book, "The Theory of Political Coalitions". The three main building blocks underlying these formal models are a rationality assumption, or the ability for actors to make goal-oriented decisions and advocate their preferences using reason, the use of abstraction to obtain general insights into particular parts, or components of social and political relations, and underlying strategic characteristics, or anticipated and expected behavior between actors.

5.1 Rationality Assumption

A nice concise explanation of rationality is "something we postulate in people that makes them behave in a regular way. And the essence of that something is that people relate their actions to their goals".[63] The assumption of rationality is crucial in separating purposeful behavior from random occurrences, thereby providing a basis for scientific inspection of social and political interactions.

While there are many variations in applied definitions of rationality all of these share the common basic characteristic of "reasoned" human behavior related to a desired outcome. How far ahead in time human beings can strategize using reason is a debatable topic in contemporary theoretical literature in political science and economics. However, it is understood under the

[63] Riker and Ordeshook 1973, pp. 12.

positivist framework of social science that human behavior is deterministic and goal-oriented. For purposes of this research, the assumption of "bounded rationality", or simply put, the inability for an actor to strategically calculate more than one or two moves into the future is utilized by the forecasting model. This reflects the reasonable assumption that humans, aside from perhaps Alaskan chess masters, are not computers, and therefore are "not able to look ahead over an unbounded time horizon."[64]

The bounding of decision horizons reflects how observed local and regulated political activity is undertaken and commences. This type of constraint is observed in New York City where taxi drivers have learned to drive at an optimal rate of speed to "time" green lights, instead of speeding to the red light, only to stop and then repeat the same fuel wasting acceleration to the next red light. They have learned through observation and developed expectations. The optimal rate of speed allows them to "time" the green lights and save fuel. [65] Much like cabbies, local political actors interact iteratively, as in "light to light", not knowing how many green lights will pass in the future until their "timing" strategy is stopped by a red light.

Unlike cabbies negotiating local traffic, international political activity seems more akin to the New York pedestrian strategy of "crosstowning" where pedestrians do not have expectations of conditions too far ahead. The pedestrian don't think of the 9th or 29th block they need to cross on their way to the dance studio above the Fairway market. Instead, they move, assess, and adjust to the localized conditions at each crosswalk or intersection. If their northbound stroll is suddenly impeded by a crosswalk light turning red then they may cross west or east on the green crosswalk if it contributes to the general direction of their goal which in this instance is the dance studio above the Fairway market.

These two different methods of navigating New York City streets contrast concepts of optimal and satisfactory choices. Actors can use "optimal" speed to "time" green lights, or "figure it out" at the decision point which in the case of the walker is the next crosswalk. These "bounded" conditions result in iterated behavior where appropriate adjustments can be made at and subsequent to each decision point.

Speeding and running red lights are risky and punishable offenses. "Jaywalking" is a risky, as well as punishable infraction, which is why pedestrians are always told to "cross at the green and not in between". These analogies all allude to structural constraints placed on the pedestrian or driver in the forms of traffic lights and crosswalk signals. The same is empirically observable for states involved in negotiating international security issues through political space and time. The behavior pattern seems almost procedural; act, observe, react or adjust if necessary, act, observe, etc. In actuality it is exponentially complex and so states "take it as it comes and if it comes".

In American baseball a batter always wishes to hit the optimal homerun but a next best alternative is a hit in the ballpark. Optimality or maximization of benefit would be theoretically best for any actor, but empirical observation shows that a satisfactory alternative or "ballparking" towards an actual or believed goal usually satisfies and suffices for the time being. This

[64] Bueno de Mesquita 1997, pp. 236.
[65] Ehow 2010.

"satisficing"[66] behavior offers a variation of rational strategic behavior. For example, the United States and China both have an optimal conception of a unified Korea, however due to constraints and conditions at this point in time, a divided peninsula "satisfices" as "next best thing".

The assumption of rationality even in limited, amended or truncated forms provides a consistent underpinning for structuring any process of observing and studying political and security management activity. In the case of Estonia there is no doubt that behavior by successive Estonia administrations was purposeful, goal-oriented and strategic as evidenced by Estonian foreign policy and security goals associated with NATO and EU memberships.

5.2 Abstraction

Theoretical abstraction from reality is vital to simplify and highlight the general processes and variables which can lead to observable relationships within political activity. Without the ability to abstract and compartmentalize, any study of political relations would be too complex, and any explanatory or predictive power would be lost in the complexity.

One could construct a replica of the world on a 1:1 scale with all the detail to explain it and study it but it would be so big it would be too large to use and give efficient explanatory capability. Kings, traders, and scientific researchers found abstraction through mapmaking highly valuable in understanding what the world actually looked like. The maps were drawn to scale and lost some geographic and topographic detail but the result was a useful abstract way of generally understanding what the planet was and provided further basis for development and planning of polities, economies, and the regional and international relations from which these spring. Parsimony is an attractive benefit of abstraction.

If general model assumptions and intuitions are determined to be empirically relevant then an abstract model is useful in studying the research issue. Testing assumptions, verifying a hypothesis, differentiating general concepts and variables which can be shown to attribute to, or infer causality, provide an abstract basis from which to fine tune research models quantitatively, qualitatively, or both.

5.3 Strategy

Positive political research identifies strategic behavior as a key characteristic of social interactions. Actors act strategically and react by taking each others' potential responses into account before making decisions. They behave purposefully and strategically to reach their goals.

The Garden State Parkway (GSP) in New Jersey is anywhere from 4 to 8 lanes wide with the farthest left-hand lane intended as a passing lane. Most motorists know it as "the passing lane". When entering traffic, many motorists immediately merge into the "passing lane", strategizing that by entering the fast lane they will get to their destination quicker regardless of whether they and their fellow lane occupants are travelling below, at, or slightly above the posted speed limit. Other drivers have observed this behavior and, in response to the bulk of drivers

[66] Simon 1957, pp.241.

making the "passing lane" slower, begun to weave and pass on the right-hand lanes to avoid the overcrowded and slower "fast" lane. On many stretches of the GSP the right hand-lanes intended for slower traffic are less impeded by traffic and are actually faster than the left-hand "passing lane". In lots of places along the GSP "passing on the right" which is illegal has become the strategy if one wants to get to the Jersey shore faster. The New Jersey State Police have observed this behavior and target speeders passing on the right for a double infraction. Strategy is everywhere in everyday life from people driving to the beach to states negotiating within or outside of international institutions.

The most commonly referred to example of strategic behavior in social science literature is the Prisoner's Dilemma[67]. In short, two prisoners are separated at the police interrogation center. Both prisoners do not know what their respective co-conspirator will tell the police and without this information each assumes the worst. Both assume each will "rat" the other out and so each confesses to the police in order to obtain a payoff of leniency for cooperating. People, states, and organizations all strategize to increase the better in lieu of the less better. In most interest-based interactions actors try to minimize their maximum loss and maximize their minimum gain to be in a satisfactory position.

6. Social Choice Intuitions- Median Voter Theorem

The basic intuitions and concepts of social choice and spatial voting were explained to this author by Donald Saari of University of California at Irvine. These decision-related voting intuitions and concepts are highly applicable and useful tools to research Estonian security strategy because they apply interests, preferences and strategic choices over an issue. Voters and candidates are similar to "hedge" buyers and "hedge" providers in finance, or states and alliances in international relations. Both processes involve strategic interactions of stakeholders to arrive at any decision outcome. Bruce Bueno de Mesquita incorporates social choice intuitions into his decision-theoretic expected utility-based forecasting model which is being used as the analytical framework for this research. The model is highly suited and reflects the empirically observed reality in international relations where "votes" are akin to capability and may be split, abstained from, bartered or coerced to influence a position on an issue.

The modern use of the "left-right" political continuum can be attributed to Anthony Downs in his 1957 seminal book "An Economic Theory of Political Action in a Democracy". Position on an issue continuum helps create an orderly assessment of actors' preferences for any given issue in a spatial depiction. The line segment, or "scale", provides a simple depiction of relative stakeholder positions assigned to the scale.

Downs lists 5 assumptions to bolster the analytical rigor of the left-right spatial format including "(1) political parties in any society can be ordered from left to right, (2)voter's preferences are single-peaked at some point on the scale, (3) distribution of voters along the scale is

[67] Dresher and Flood 1950.

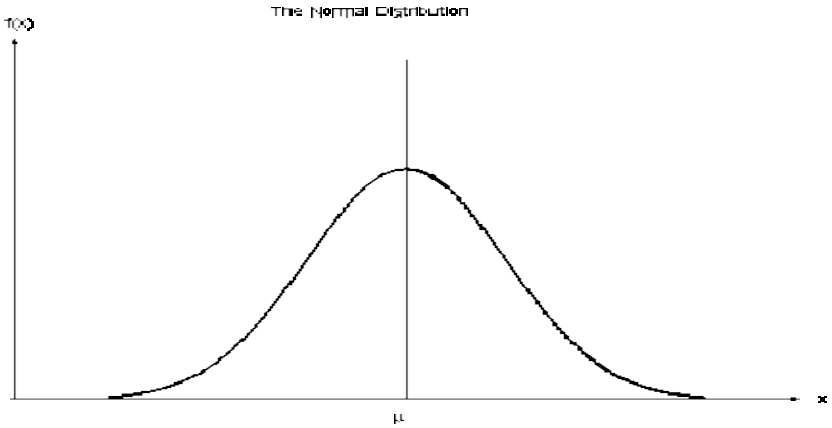
variable from society to society but fixed in any one society, (4) a party can move ideologically either to the left or to the right up to but not beyond the nearest party to which it is moving, (5)In a two-party system, if either party moves away from the extreme nearest it toward the other party, extremist voters at its end of the scale map abstain because they see no significant difference between the choices offered them."[68] The continuum and the assumptions provide a consistent analytical framework of relations over an issue.

Imagine a continuum which represents an issue onto which are placed candidate positions on an issue, let us say, mandatory sentencing for criminals on one side of the continuum and or court determined sentencing based on consideration of the facts of each case on the other end of the continuum. In between may be other hybrid versions of different combinations of sentencing guidelines. Candidates A, B, and C take positions along this continuum. Voters align themselves to the candidates whom most closely represent their preferences on the issues. Voters' choices are constrained by the candidates for office and their platforms on issues.

Mandatory Sentence ◄——|——|——|——|——|——|——|——► Court Discretion

C1. A B C

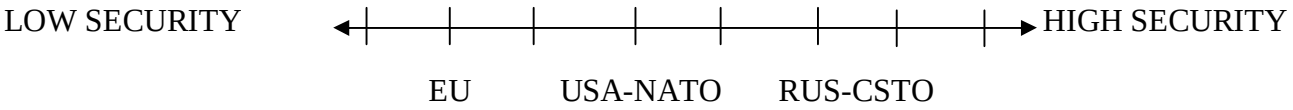
Candidates also are constrained in their choices of issue platforms by intuitions identified by Black's Median Voter theorem. The Theorem rests on a basic assumption that a sample population on most issues will resemble a bell shaped distribution if plotted statistically (see chart below).



In line with the theory, candidates realize that moving away from the median voter decreases their chances of election success, and that the by fashioning an attractive political platform to move or appear to move toward the median voter increases the chances of election success. Even then there can be no guarantee that the candidate will actually implement their platform after a victorious election outcome. The same logic may be applicable to alliances such as NATO or institutions such as the EU if the stakes are high enough.

[68] Downs 1957, pp. 142.

Paramount considerations of states in security management decision-making in international relations can be shown in the following continuum C2. The choices of security enhancement provision for Estonia, as well as for other states, are plotted along the continuum.



C2. Regional Military Capability

In the area of security, post-Soviet Estonia had three apparent strategic security options primarily based on geographical location. These hard options were the EU, the United States through NATO, and Russia and the CSTO. Like the candidates in elections, competing institutions are also constrained and do not want to alienate potential member states thereby giving competing alliances, or institutions increased influence.

For instance, Russia and its defense alliance, the Collective Security Treaty Organization or CSTO, would seem like the perfect security provider for the Estonia if the issue was solely based on military capability and geographical location. However, disregarding the historical record, on a raft of other issues from corruption to economic policies and political freedoms, Russia seems far away from the median or mean European state. * This is evidenced by the migration of many former Warsaw Pact nations and former Soviet republics such as the Baltic States into the EU and NATO security constellations. Russian feuding with fellow CSTO allies such as Belarus and Ukraine over gas transit customs revenue further defines its regional isolation.

Institutions and alliances must provide policy platforms which attract states if these wish to compete with other institutions. In social choice research, “hedging” can be likened to a form of “sophisticated voting” where policy platforms are slightly adjusted from outright straightforward positions so as not to paint oneself into a corner but still have leeway to influence elections with adjustment tactics. Sophisticated voting is differentiated from sincere voting in which each election is a one shot interaction with little consideration of possibilities much farther down the road. This “bounded” forward looking approach is akin to the iterative interactions of Estonia, NATO, and the EU in interacting to get a general understanding of pre-membership impact and what possibilities can occur once membership is expanded.

Estonian leaders calculate and negotiate a foreign policy stance closest to their own ideal point within the negotiations structure. The negotiations are a back and forth process between and amongst many actors or “stakeholders”. However, unlike in voting, negotiations involving political power in an international setting including other dimensions and factors. Third parties can influence negotiations through a variety of different means including incentives, security proffers, coercion, or threats. The forecasting model incorporates all of these variables and intuitions with the Median Voter theoretical assumptions and logic.

* see Transparency International, Freedom House, Bertelsmann Transformation indices.

In accordance with the logical intuitions of the Median Voter Theorem, individual states, mutual defense security alliances, coalitions, and institutions must take care not to stray too far from the median voter, or in international relations from the median state, on pertinent issues especially those concerning security. Such migration on any issue away from the median voter leads to a loss of votes, or in the case of relations between states, results in a loss of political power and influence.

7. Research Framework and Design

7.1 The Forecasting Model

The forecasting model, its basic principles, assumptions and construction provide the preliminary structure of this research. The theoretical heritage of the forecasting model picks up from the "old" decision-based expected utility model (Bueno de Mesquita et al. 1984, Bueno de Mesquita and Stockman 1994) developed by Bruce Bueno de Mesquita of New York University.

The original "old" model used 3 inputs including a stakeholder issue position scale, stakeholder salience on an issue and stakeholder capability to calculate utility. A one dimensional issue line plots players' positions *vis-a-vis* other players positions on an issue. The issue is also assumed to be one which is tied to stakeholders' interests where the median voter position represents the "safest" position. The median voter position represents a point in the middle of a distribution of players on an issue which by virtue of being in the middle can be expected to carry the least political friction and coercion potential. Conversely, the farther a player moves away from the median position the more opposition to its viewpoint can be expected from more parties to the issue.

The original expected utility model looks at players A and B, where A challenges B, in an attempt to change the status quo with a certain probability of success. The model calculates Player A's expected utility from challenging or preserving the status quo, and player A's expectations of player B's utility from a challenge to or preservation of the status quo. These preliminary utility values are discounted for salience, or importance assigned an issue by a stakeholder, and weighted by capability, or the potential resources that a stakeholder can apply to the issue (see Model Calculation Appendix). The same calculation is made simultaneously from B's vantage point. So for two players there are four calculations. If B capitulates then the status quo changes for B and the median voter position shifts. If B resists, then A's and B's positions are discounted by issue salience, weighted by capability (power) of each player (including third parties), and then compared to predict the outcome. This original expected utility model provides the theoretical and analytical basis of the evolved forecasting model used in this research.

The forecasting model used in this research is a culmination of social choice research intuitions combined with the logics of game theory, decision theory and Bayesian updating. Even though the model does employ quantitative rigor it is dependent on qualitative accuracy with regards to the estimated input data which is fed into it. ** This in turn is dependent on qualitative as well as quantitative knowledge.

** The old Garbage In Garbage Out, or GIGO consideration is applicable to any analysis endeavor.

In forecast modeling within international relations contexts, qualitative veracity is even more important because actors' capabilities, salience, resolve and positions on issues must be estimated as accurately as possible to obtain results of high confidence. The model as tool places reliance on knowledge of issues and actors by regional and local experts, by country researchers with expertise in political parties, unique local political culture and socio-economic issues providing an accurate basis for quantified data.

The forecasting model relies on qualitative as well as quantitative knowledge. Professor Bueno de Mesquita who is a qualitatively trained South Asia area specialist concludes "there is potential for a marriage between rational choice and constructivism. They don't exclude but rather complement each other. Constructivism is all about how preferences arise and rational choice takes them as given to predict outcomes, so this is potentially a great combination".[69] A virtuous bridge across research orientations can provide insights excluded when inflexible procedures are used.

The model allows a researcher to reduce the complexity of real world decision making into a more parsimonious and therefore more manageable platform for grasping the important variables underlying political behavior which is social and strategic in nature. The pragmatic nature of the forecasting model and its practical application make it a highly useful tool for research.

Just as maps do not capture the entirety of the Earth in microscopic detail, the forecasting model does not attempt to replicate the precise detail of political interaction. The model uses game theoretic rigor, rational choice assumptions and social choice concepts, and expands upon the original model by adding a fourth "resolve" input variable to sufficiently capture the forces at work in political interactions. This provides a basis for understanding and more accurate forecasting of political interactions. Once the general dynamic variables are identified, fine tuning the results can be attained through quantitative, qualitative enhancements, or both.

The forecasting model used as a basis for this research is not theoretically airtight. It has evolved from a prior model designed to be used in applied settings and "is a tool designed for practical applications. As such, some sacrifices in theoretical or analytical purity are made to gain empirical leverage."[70] The forecasting model framework of analysis is highly appropriate for any issue dealing with Estonian security behavior to which many influential stakeholders and institutions are involved. The model presents the strategic impacts upon all participant stakeholders including EU members, NATO members, and third party players like Russia, Belarus and the Ukraine. The model goes further than issue resolution and uncovers systemic implications and externalities not easily apparent in a simple unstructured analysis of multi-lateral political interactions. The complexity of the research subject is aptly fitted to the attractions of the forecasting model.

The more complex current forecasting model as an evolved version of the "old" decision-based expected utility model (Bueno de Mesquita et al. 1984, Bueno de Mesquita and Stockman 1994) utilizes an issue scale similar to the one described by Black's median voter

[69] TheoryTalks: Bueno de Mesquita 2009.
[70] Bueno de Mesquita 1997, pp. 235.

theorem where preferences are assigned positions on a line. The issue scale remains central in both models. A departure from Black's theoretical basis by the "old" expected utility model was an allowance of preferences to dissipate as the negotiating process renders these ideal/preferential positions unattainable. This type of amendment reflects how real world actors "satisfice" within localized parameters, without an "all or nothing" bargaining posture. The current forecasting model can accommodate both ideal and actual positions on issues.

Applicability to non-democratic, non-procedural negotiations over an issue between political actors is a practical departure of the forecasting model's from Black's assumption of voluntary "one person - one vote" conditions. While reenrolled voting in most democracies besides Australia is voluntary, the model analogizes power and influence with "votes" which may be split, abstained from, or coerced in international political settings. In a practical example of this analogy the 2011 strategic political interaction between Hosni Mubarak and the Egyptian opposition resulted in "street-power" votes aggregated against Mubarak while the Egyptian "military votes" remained on the sidelines assisting opposition against the status quo. In essence, Mubarak was "voted" out of office in an unconventional election when power and influence aggregated against him primarily from "the Arab street" as well as withdrawal of support by "third parties" such as the Egyptian military and former benefactor the United States. The forecasting model seeks to use theoretical reflections of these empirical practicalities in International Relations where "votes" are not standardized and all "voters" are not equal.

The reinterpretation of power and influence as "votes" opens up the possibility of modeling what everyone knows occurs in real world political interactions i.e. political coercion, enforced voting, and related phenomena called expectations. Putting aside the paradoxical nature of most voting procedures[71], most sorts of political negotiations especially in international relations are not conventionally structured like standard elections. The Molotov-Ribbentrop experience inculcated upon the Estonian foreign policy elite the transcendent nature of coercion and the relevance of "third parties" in their security strategy. The forecasting model incorporates these empirical effects.

Unlike traditional plurality-based elections where voters are given one vote, all participants in international relations are subject to their own resource capabilities which constrain or enable in political negotiations between actors. Votes in these strategic interactions are weighted or discounted by capabilities (power), salience of an issue (importance), resolve, and stakeholder position on an issue (policy). The inclusion of capabilities in the composition of "votes" in international relations brings in the possibility that a state may not be able to opt out of "voting". Compulsory and enforced voting does not only occur in Australia nor does coercion solely occur in Egypt.

The forecasting model extends social choice logic by calculating utilities and payoff combinations of stakeholders in their dyadic or "pair-wise" strategic interactions. This means the models basic interactive unit consists of pair-wise interactions of stakeholders. Political interactions over issues usually begin between two primary parties and parties continue dealing with

[71] see Saari 2001, 2001.

the issue on a one to one basis where third parties are treated as ancillary influences to the primary interaction.

The model is premised upon two stakeholders who are unsure of each others' negotiating nature. Possible stakeholder natures consist of four stakeholder "types". These "types" are represented spatially as "hawk" and "dove" on one dimension, and "retaliatory" and "pacific" on the other dimension. A hawk type prefers costly coercion of a stakeholder to get its way and a dove type prefers compromise at low self-defense cost. A retaliatory type prefers possible costly defense against coercion by a stakeholder and a pacific type prefers conceding to coercion in lieu of costly self-defense. Given that each stakeholder's initial type is uncertain, the model assigns all stakeholders a beginning median type value of .50 meaning the stakeholders are perceived to have an initial 50/50 chance of "type" prior to the start. A stakeholder's actual type is determined by subsequent moves and the model's calculation of those moves in accordance with Bayes rule.

Why Bayes rule? An excellent description of Bayesian logic can found in *The Economist* as follows:

> "The canonical example is to imagine that a precocious newborn observes his first sunset, and wonders whether the sun will rise again or not. He assigns equal prior probabilities to both possible outcomes, and represents this by placing one white and one black marble into a bag. The following day, when the sun rises, the child places another white marble in the bag. The probability that a marble plucked randomly from the bag will be white (ie. the child's degree of belief in future sunrises) has thus gone from a half to two-thirds. After sunrise the next day, the child adds another white marble, and the probability (and thus the degree of belief) goes from two-thirds to three-quarters. And so on. Gradually, the initial belief that the sun is just as likely as not to rise each morning is modified to become a near-certainty that the sun will always rise."[72]

Bayesian analysis provides a mechanism to represent mathematically what humans do all the time; the ability to form views about the world through interaction, observation, feedback, adjustment of current view, and anticipation of the future based on these prior observations. The formula is as follows:

$$P(A \mid B) = \frac{P(B \mid A)P(A)}{P(B)}$$

The probability of A given B equals the probability of B given A multiplied by the probability of A divided by the probability of B provides a means to causally relate two occurrences to each other.

A very simple modern example of Bayesian intuition is the utilization of browser cookies which gather information about web users' online preferences and updates user type based upon observed online behavior. This used to lead to unwanted commercial pop-up windows and directed banner advertisements which turned out to be annoying for the average user and had to be more stealthily implemented. Similarly, positive feedback ratings are tallied on commercial

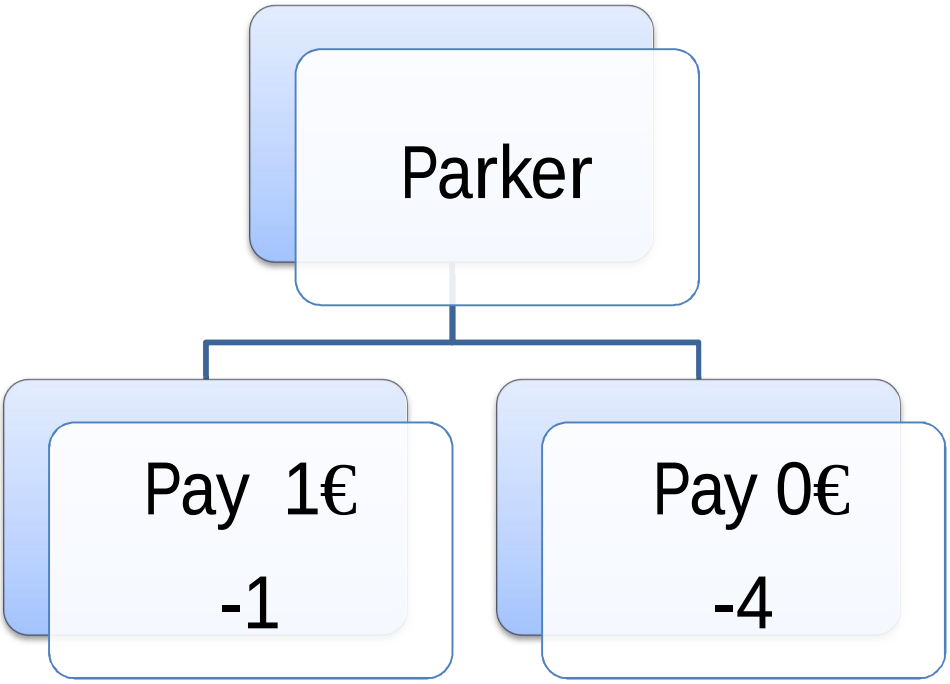
[72] The Economist 2000.

websites like Ebay and Amazon to provide buyers of products information about seller "type" correlated to reliability. While online users and states have common Bayesian prerequisites the amount of information available to commercially motivated parties is usually much greater than the information about institutional reliability and intentions in international relations.

Beginning with limited information about NATO and EU institutions, and using historical observations, Estonia has formed its regional and international security view. An observed recent historical process of regional power expansion and occupation (Soviet Union 1940), war and occupation (Nazi Germany 1941-1945), and regional power expansion and occupation (Soviet Union 1945-1991) has been determined to be a major component of Estonia's security risk profile. In finance an adherence to the "trend" is commonly referred to as "the trend is your friend". With patchy current information and uncertainty about the future states may do as their neighbors do and join institutions for security. Observed political trends can be a good indicator of the course of future events but contingency plans must always be made to accommodate unexpected deviations. The Molotov-Ribbentrop pact was merely tactical behavior in a wider Nazi German strategy for world domination. For Estonia this behavior reaffirmed the observed trend of larger regional state interactions resulting in negative security externalities for smaller states like Estonia.

7.2. Deriving Stakeholder Utility

The act of "feeding the meter", or the risk laden issue of not paying for street parking, provides a simple example of utility in decision making situations. A driver wants to pick up a bottle of wine from the Alko store. She is in a bit of a rush and parks her car in front of the store. She quickly surveys the street and sees a parking meter at the far corner and no visible traffic enforcement officers. She looks through the store window to assess how long the line is at the cashier. There are about 5 customers in the aisles and 3 customers in line. Going to the parking meter would add another minute to the whole endeavor. She reasons that it is a quick purchase and traffic enforcement officers in this neighborhood are rarely seen so she decides not to pay 1€ for a few minutes of parking and take her chances. She gambles and runs into the store to find her wine and pay for it. She returns to her car to find a 40€ ticket on her windshield.



In her choice between two lotteries the utility calculation of the previously described situation looks like this:

Lottery A = Pay 1€ with an optimal outcome probability of 1 (100%)

Lottery B = Pay 0€ with a probability of success of .9 (90%) or -40€ fine with a probability of .1(10%)

Utility of A = -1

Utility of B = 0(.9) – 40(.1) = -4

Therefore if the probability of a fine is lower or the fine amount is lowered a driver could be expected to skip "feeding the meter". Higher probability and fine amount would induce the opposite effect.

The previous example is a simple utility calculation exercise in a one-shot situation. The forecasting model utility calculations are more complex extrapolations of utility calculations designed to represent the dynamics of actors engaged in strategic iterated negotiation interactions.

The following exposition of the forecasting model's detailed calculations and the model's treatment of the data is adapted primarily from books and articles. (Bueno de Mesquita 2009, 2010 and forthcoming article in Conflict Management and Peace Science). Details from the older decision-based expected utility model from which the newer forecasting model is evolved have also been included where applicable in the following descriptions of how the forecasting model works. (Bueno de Mesquita 1985, 1992, 1994, 1997).

While this research utilizes 65 stakeholders the utility example provided here will use a hypothetical 29 stakeholders. A modeled interaction over an issue by NATO (n=28) and Russia (n=1) is calculated iteratively in a pair-wise process with payoffs and utilities resulting for all 29

stakeholders in both directions A and B, A and C, B and A, B and C, C and B, C and A and so on for all stakeholder combinations. Pair-wise payoff calculations through all 29 stakeholders (29-1) and (29), included third party aggregations for or against A where (29) and (29-1) complete a round.

Each pair would individually decide whether to offer a challenge to the other player and influence the status quo or not. Proposing always opens the door to cost risk but also sometimes abstaining may lead to opportunity costs. Therefore each stakeholder in a negotiation must formulate a move endogenously to maximize their own utility. Proposing changes to the status quo entails costs and each player has their own budget constraints (capability) and preferential characteristics (salience, resolve) regarding its position on the issue. A less pragmatic middle of the pack stakeholder who proffers "all or nothing" demands can expect to have costs imposed on it by other stakeholders.

Compromise proposals can be expected to have lower costs and usually compromise proposals present attractive cost/benefit tradeoffs. In general for any stakeholder, meeting halfway on an issue is preferred to a costly increase in political tension because it gets that much closer to a goal with little or negligible capability impact. From the perspective of the recipient of a compromise proposal the perception of coercion is reduced. Stakeholder "types" are established after repeated negotiation interactions and contribute to every Stakeholder's formulation of propositions made to other Stakeholders. The forecasting model calculation representing the probability of Stakeholder A succeeding in one iteration of a Stakeholder A and Stakeholder B interaction is found in (1) of the Mathematical Appendix.

The equation on point (1) of the Mathematical Appendix represents the utility to Stakeholder A of Stakeholder's B position on the issue comprising the differences in policy position and resolve. The positive parameter $\Theta>0$, adds to another positive parameter $\beta>0$, so that $\Theta + \beta \leq 1$. These elasticity parameters together represent constant or decreasing returns to scale, respectively, for position and resolve. For example if $\Theta=.5$, then a 1% increase in preference on an issue would lead to an approximate 0.50% increase in the policy preference contribution to Stakeholder A's utility for Stakeholder B's proposal on the issue. If $\beta =.5$, then a 1% increase in resoluteness over an issue would lead to an approximate 0.50% increase in the resolution posture contribution to Stakeholder A's utility for Stakeholder B's proposal on the issue. The intuition behind this Cobb-Douglas utility function is found in the real world negotiation process of combining flexibility on position to obtain an attractive strategic return on both dimensions. In the model, as in the real world, all or nothing negotiation postures are rarely successful.

The forecasting model differentiates negotiation costs into 4 types to reflect the practical conditions found in real world strategic political interactions. The 4 types are as follows:

α=attempted coercion met with resistance

τ=subjection to coercion and resisting

γ=subjection to coercion and not resisting

φ=the cost of coercing

In an example of a Stakeholder A and Stakeholder B proposal exchange, the payoff to Stakeholder A is amended by Stakeholder B's reaction to a proposal subject to the 4 different cost types resulting in 8 possible outcomes. These 8 possible outcomes and their mathematical representation can be found in (2) of the Mathematical Appendix.

Utility calculations for Stakeholder A are conditional on proposals offered Stakeholder B and perceived stakeholder types (D for dove, R for retaliator). Perceived stakeholder type is updated according to Bayesian analysis because interaction between stakeholders results in proposal negotiation behavior which the model calculates dynamically and incorporates into the decision making process. Beliefs about Stakeholder "types" which are heuristically deemed as outlier values or "extreme" relative to the total dispersion of stakeholder types are reset at a 0.5 value. Stakeholder A's utility reflects initial proposal and costs associated with that proposal and how such proposal is proposed. The calculation is found in (3) of the Mathematical Appendix.

> Proposals between stakeholders are deemed credible if these fulfill either of the following two conditions:
>
> Condition #1. The Third Possible Result occurs in which Stakeholder A coerces and Stakeholder B capitulates.
>
> Condition #2. Value of Stakeholder A's proposal discounted by Stakeholder B's position (relative to the range of policy positions) is less than Stakeholder B's current resolve value.

After all stakeholder interactions are calculated the current round is complete. Stakeholders' adjusted positions in this current round reflect the credible proposals received and the payoffs and utilities applied. The stakeholder's predicted position is a weighted mean of credible proposals received by the stakeholder. The predicted result of the next round is the average of the previous, current and projected rounds' weighted means of total credible proposals.

Current proposals between stakeholders are derived from an expected equilibrium of the current iteration. Credible proposals are weighted by capability and salience. Once the preliminary stakeholder utility calculations are made the model combines these utilities with the four basic inputs which are determined to affect all stakeholders' negotiation postures and results. These four input variables are power or **capability**, the importance of an issue or **salience**, determination over issue resolution or **resolve**, and **position** on an issue defined by a location on an issue continuum. The resolve variable is a new feature of the forecasting model which allows tolerance and sensitivity measurement for a stakeholder's position on an issue. In essence, resolve and position create a two dimensional issue space. The four variables which influence stakeholder utilities combine to result in complete individual and collective stakeholder payoffs and utilities. The model calculates the interactions between stakeholders iteratively and updates stakeholders' payoffs, utilities, capability salience, resolve and position accordingly.

The model continues calculating stakeholder utilities until an endgame rule is invoked where either the collective payoffs are greater than the predicted collective payoffs, or, the collective utility is greater than the predicted collective utility. The rationale behind this end rule is a decreased expectation of "utility" benefit for the average stakeholder.

7.3 Power and Influence Input - Capability

Capability to effect and affect social decision interactions provides the basis of first input of the forecasting model. Power can be construed in many ways with many manifestations and constructions. Traditional understandings of power based upon military and economic capacity can be expanded into many other interpretations for utilization as input variables in expected utility models. The old adage, "the pen is mightier than the sword" is still alive and relevant. Using the 2011 Egyptian revolution as a contemporary example, the old refrain might be updated to: "non-violent networked protest power is mightier than police batons and tanks in the street". Capability to influence outcomes can materialize in many forms.

State power can be generally defined in traditional Westphalian terms as military and economic power providing the backbone of a state's territorial position and negotiation posture. However political power can reside in infinite spaces and be manifested in dynamic aggregations. Individual states, groups of political stakeholders, groups of states, collective actors like alliances, and opposition movements can all possess myriad power resources which provide the capability basis of their interest inspired interactions.

Capability is represented in the forecasting model equations as C or c_i, the subscript representing actor *i*'s capability, or potential "votes" in negotiations. Power and votes on an issue are analogous in this context because the model uses an expanded definition of "votes" based on capability. To reiterate, unlike traditional plurality based elections where voters are given one vote, all participants in international relations utilize their own capabilities which enable or constrain action in political negotiations between stakeholders.

The forecasting model uses a capability scale of 0 – 100 to indicate the potential power or "capability" of a stakeholder to apply to negotiations over an issue. Stakeholders cannot have a capability value of 0 (an actor with zero capability cannot be assumed to be a stakeholder) and the possibility of a stakeholder having a capability value exceeding 100 (to accommodate a possibility of a hegemonic superpower or dictator with capabilities many times that of the smallest stakeholder at the lower end of the range). The state of Nauru is 8.5 square miles and has 13,000 residents. If Nauru was involved in a modeled interaction with China and a capability estimate for Nauru using either economic, military or population criteria was valued at 1 it is easy to extrapolate that Chinese capability would logically exceed a capability value scale of 100. This is the logic behind the exception to the general 0-100 capability scale.

As an example of capability variable dynamics, if stakeholder X with a capability estimate of 39 or 39_x, were to challenge rival stakeholder Z with a capability of 33, or 33_z, devoid of any other factors, stakeholder X can be expected to get their way in the negotiations over the issue. However if stakeholder T with a capability of 7 or 7_t, throws their weight behind stakeholder Z, the challenge probably could be repulsed. The exchange can be represented as follows:

$$(33_z + 7_t) > 39_x$$

Using another example, if under an assumption that capability is solely derived from population, then in a contest devoid of other factors over where to hold a hypothetical Baltic hockey championship, Lithuania (population 3.4 million) could be expected to secure their choice over

Estonia (population 1.3 million) unless Latvia (population 2.3 million) threw its' weight behind the Estonian choice. The negotiation would look like the following:

$$(1{,}300{,}000 + 2{,}300{,}000) > 3{,}400{,}000$$

Estimating capability is a qualitative as well as quantitative undertaking. Power and capabilities come in unconventional forms. States still possess conventional and traditionally organized sources of capability including legitimacy, military and police power, the ability to tax, and systems of bureaucracy. Groups of states, alliances, political and economic unions, dictators, peace activists and other interest groups also possess varieties of capability. Ghandi was aware of this as he politicized then mobilized these unconventional power resources. The forecasting model is a flexible tool incorporating diverse capability resources.

7.4 Issue Importance - Salience

How important was the status of Estonia-Russian relations to Portugal in 1994? How about Portuguese sentiment on the same topic when Estonia joined NATO in March 2004? And then again when Estonia joined the EU in May 2004? Salience is the importance of an issue to a stakeholder represented in the forecasting model as s_i or the salience to actor *i*.

Portugal and Estonia are parliamentary republics bordered on the west by water and on the east by a relatively larger neighbor. That was about the limit of their common traits prior to 2004. Now Estonia is an EU and a NATO member geographically located on the northeastern side of Europe. Portugal is an EU and a NATO member geographically located on the southwestern side of Europe. Both are on opposite sides of Europe yet are linked institutionally.

Subsequent to Estonia becoming a member state of the EU and NATO the salience of Estonia-Russia relations to Portugal have increased in both solid political terms as well as logistical externalities associated with mere membership in the same organizations. Complementarily, Portuguese interests and issues have been raised to higher salience levels for Estonia because each state is insitutionally tied to the other and must have decision-making contingencies that consider all stakeholders. In fact, in 2011 a Portugal-Estonia League promoting the joint cultural interests of each nation has established a website and a Facebook page where amongst its friends are Estonian President Toomas Hendrik Ilves and the Official Portuguese President Website.[73] The importance of each nation's issues to the other is growing.

The increased institutional salience of Estonia as a nominal voice in the EU Parliament was evidenced by the Treaty of Lisbon where the number of Estonian MEPs increased from 5 to 6 representatives in keeping with minimum rules. This may also have been a procedural offset to the newly imposed Qualified Voting Majority scheme which has been said by some observers to slightly disadvantage smaller EU states. In any case the Lisbon amendments do show an increased structural salience for Estonia advocacy in the EU Parliament.

The forecasting model uses a salience scale of 0 – 100 to indicate the importance of an issue to each stakeholder engaged in negotiations over an issue. The scale is simplified to 0 – 1.00

[73] A União Luso – Estónia 2011.

in the model calculation (multiplied by .1) so that a stakeholder with a salience scale score of 50, or .5, can be seen in the middle of a range of stakeholder importance of an issue.

Using a literal example, stakeholders' scores on the salience scale to the issue "The hurricane is approaching" can be interpreted by stakeholder K as 0(0), meaning "wonder what's on the tube tonight?", by stakeholder A as 50(.5) meaning "board up the windows, check our provisions", and by stakeholder T as 100(1.00) meaning "dial 911 or 112 in Europe". Stakeholders have differences in salience over the same issue sometimes and under different conditions might have uniform salience on the same issue.

Salience in the expected utility calculations is represented as s_i, or salience of issue to actor *i*. Using the previous data from the example in the discussion of capability, if stakeholder ***x*** with a capability estimate of 39, or 39_x, and a salience on the issue of $.33_x$ were to challenge rival stakeholder *z* with a capability of 33, or 33_z, and a salience on the issue of $.39_z$, devoid of any other factors, stakeholder X can be expected to prevail in the negotiations over the issue.

for stakeholder x, $(39_x \times .33_x) = 12.87_x$

for stakeholder z, $(33_z \times .36_z) = 11.88_z$

$12.87_x > 11.88_z$

However if stakeholder *t* with a capability of 7, or 7_t, and a salience score of less than half the other stakeholders, or $.15_t$, throws their weight behind stakeholder z the challenge can be expected to be repulsed by a hair. The exchange can be represented as follows:

for stakeholder x, $(39_x \times .33_x) = 12.87_x$

for stakeholder z, $(33_z \times .36_z) = 11.88_z$

for stakeholder t, $(7_t \times .15_t) = 1.05_t$

$(11.88_z + 1.05_t) > 12.87_x$, or stakeholder coalition zt prevails, $12.93_{zt} > 12.87_x$

7.5 Determination and Flexibility – Resolve

How resolute was the Estonian government is pursuing NATO and EU membership after the dissolution of the Soviet Union and the reestablishment of Estonian independence? How resolute were Estonian foreign and security policy officials in aligning Estonia with NATO and the EU? Statements from Estonian government officials as well as policy positions adhered to over the course of the post-Soviet Estonian security management process indicate high resolve over attaining NATO and EU memberships by successive Estonian governments.

If public declarations by successive Estonian presidents such as Ilves' are indicative of resoluteness to attain EU and NATO memberships as a primary Estonian foreign policy goal, then it can be understood to have been an effort undertaken with high resolve. In his 2011 Independence Day speech Estonian President Ilves invoked resolve in his speech by stating, "This year will mark

the 20th anniversary of the restoration of Estonian independence - almost an entire generation. Estonia fulfilled the goal of her people in those first twenty years: to do everything in her power to prevent the tragedy of the 20th century from happening again. This was done through deliberations and government administrations, exertions and even sacrifice. It was done in a consistent, resolute fashion."[74]

Just as resolute was the Russian Federation's determined posture against Estonian membership in NATO. On a scale of flexibility/resolve regarding the NATO accession issue these two parties were equally inflexible in their positions. A pair-wise negotiation on the NATO position solely between highly resolute Estonia and an equally resolute Russia on the other side of the position scale could be expected to result in victory for the much more regionally influential Russian Federation. That outcome did not materialize which points to other factors involved.

How resolute were the United States and NATO members in clinching a deal to expand NATO eastwards to the borders with Russia? How resolute were Russia and Belarus on the opposite side of the issue? In the context of this research the forecasting model addresses resoluteness over an issue by applying a resolve/flexibility factor to stakeholder positions represented in the model on a position scale.

Resolve is a variable intended to estimate the flexibility of a stakeholder over issue resolution. The representation of resolve in the forecasting model can be shown as r_i or the resolve of stakeholder *i*. The forecasting model uses a resolve scale of 0 – 100, to indicate the determination of a stakeholder towards resolving any issue. The scale is simplified to 0 – 1.00 in the model calculation through multiplication by .1, so a stakeholder with a resolve scale score of 50, or .5, can be seen as equally flexible on an issue.

The variable in the model is represented on a scale from 0-100 values where each value represents a degree of stakeholder flexibility regarding an issue. A value of 0 means total inflexibility, and moves higher toward a value of 100, means absolute flexibility to get a deal done. Using a hypothetical representation, stakeholders' scores on the resolve scale to the post-Soviet issue of "NATO is expanding to Estonia" can be interpreted by stakeholder Russia as 0(0), meaning "Maybe when hell freezes over?", by stakeholder Ireland as 50(.5) meaning "either way seems OK", and by stakeholder Estonia as 100(1.00) meaning "by all means necessary".

On the issue of Estonian NATO membership, initial official Russian flexibility to NATO expansion was repeatedly announced in public to be deemed intolerable. However, as the 1999 Clinton-Yeltsin negotiation over NATO expansion announcements revealed (see NATO and Russian Coexistence section above), an ideal position and an actual position may be highly sensitive to domestic and external constraints, which translate into variations in flexibility over an issue.

Subsequent to Estonia becoming a member state of the EU and NATO the resolve of each organization to solve conflicts between Estonia and Russia such as the April 2007 Bronze Soldier incident has increased in both solid political terms as well as logistical externalities associated with mere membership in the same organizations. The aftermath of the Bronze Soldier

[74] 2011 Estonian Independence Day Speech by President Ilves.

incident was marked by cooled political and economic relations between Estonia and Russia. Failed Russian resolve over the issue translated into Russian energy transit and trade volume redirected from Estonia to other ports and transport corridors. Estonian energy transit business from Russia was slowed to nothing. This occurred subsequent to the Bronze Soldier issue at a time when the global economy was healthy and rising energy prices and EU demand for energy provided an economic boon for Russia.

The following table shows imports from Russia and the CIS to Estonia in November 2007 from a year earlier (CIS and Russian Federation statistics bolded):

Share of countries in Estonia's exports and imports, November 2007

Groups of countries, countries	Exports			Groups of countries, countries	Imports [c]		
	million kroons	share,%	**change compared to same month of previous year, %**		million kroons	share,%	**change compared to same month of previous year, %**
TOTAL	11 749.7	100.0	11.6	TOTAL	15 322.6	100.0	1.8
EU-27	**8 240.7**	**70.1**	**14.9**	**EU-27**	**12 243.0**	**79.9**	**5.3**
CIS	**1 503.7**	**12.8**	**11.5**	**CIS**	**1 836.2**	**12.0**	**-10.9**
1. Finland	2 182.1	18.6	20.1	1. Finland	2 334.8	15.2	-11.6
2. Sweden	1 634.1	13.9	21.4	2. Germany	1 960.8	12.8	-3.8
3. Latvia	1 231.0	10.5	19.5	3. Sweden	1 876.6	12.2	14.4
4. Russian Federation	**1 203.3**	**10.2**	**15.0**	**4. Russian Federation**	**1 363.7**	**8.9**	**-15.9**
5. Lithuania	706.3	6.0	27.5	5. Latvia	1 312.2	8.6	15.3
6. Germany	594.0	5.1	12.1	6. Lithuania	990.4	6.5	24.8
7. Canada	565.4	4.8	-	7. Poland	646.0	4.2	17.3
8. Norway	405.2	3.4	40.7	8. Netherlands	522.5	3.4	-7.8
9. Denmark	361.7	3.1	40.8	9. Denmark	470.8	3.1	37.1
10. Netherlands	310.1	2.6	10.4	10. United Kingdom	470.2	3.1	74.5

Source: Statistics Estonia 2010.

Institutional support for Estonia evidenced by NATO and EU reactions to these Russian tactics ranged from a NATO virtual cyber-prophylaxis to the EU Baltic Energy

Interconnection Plan "BEMIP" plan. These "hedge-like" reactions affirm the higher salience profile of Estonia in each organization and higher resolve of each organization to conclude member conflicts with external stakeholders. NATO established a counter-cyberwarfare contingency in Tallinn as an effective reaction to network attacks suspected to have originated in Russia in May 2007. The action plan of the EU High Level Group identified electricity and gas markets as key areas of development for the "BEMIP" scheme. EU salience and resolve to Estonian security issues are apparent in EU energy policy which has adapted to the realities of Russian energy politics. Plans such as BEMIP to diversify energy procurement and minimize reliance by the Baltic energy "demand island" on "politicized" Russian sources of energy are institutional policy manifestations of increased salience and issue resolve.

The increased institutional resolve capability (the ability to be resolute or flexible on an issue) of Estonia in the EU Parliament was reaffirmed by the Treaty of Lisbon stipulation of a minimum number of 6 Estonian MEPs. This structural amendment allows Estonia the possibility of greater flexibility for issue advocacy and resolution within the EU. Resolve over an issue for Estonia is institutionally reflected in the ability for national MEPs to concentrate their votes on issues when Estonia is resolute over an issue or spread the same votes out in a signal of flexibility over an issue.

7.6 Position on Issue - Position

The uni-dimensional spatial aspect of position is represented by the issue position scale onto which stakeholders' ideal or actual positions on an issue are located. The position line segment is descended from intuitions and concepts from Anthony Downs' political scale and Black's Median Voter Theorem. The model calculates c_i, s_i , and r_i in conjunction with an actor's position on an issue line continuum and updates stakeholders' positions as equilibrium relations unfold. Positions have different utilities for different stakeholders and that these utilities provide the basis for updating positions after stakeholders interact. The model utilizes a two dimensional issue space with the issue position being the first dimension and the resolve variable being the second dimension. The model reflects the realities of political negotiations where positions are malleable during dynamic interactions involving power, importance of, and resolve over an issue. These are as relevant to the post-Soviet period of dissolution and realignment for Estonia, as they currently are for Egyptian, Libyan, and Yemeni political contestations.

The following example table shows hypothetical utility scores associated with stakeholders' positions (those positions spatially represented on the position scale/the issue scale 1-100). The row value represents the row stakeholder's utility for the column stakeholder's alternative position (ex. For Stakeholder A, Stakeholder B's utility of .80 (+) exceeds Stakeholder D's which is -.20 (-) and therefore A prefers stakeholder B's utility associated with the issue position. The hypothetical table follows:

Stakeholder	Stakeholder A	Stakeholder B	Stakeholder C	Stakeholder D	Stakeholder E
Stakeholder A	—	.80	.10	-.20	-.50
Stakeholder B	.80	—	.20	-.50	-.80
Stakeholder C	.10	.20	—	.60	.50
Stakeholder D	-.20	-.50	.60	—	.40
Stakeholder E	-.50	-.80	.50	.40	—

Capability Estimates	Stakeholder A	Stakeholder B	Stakeholder C	Stakeholder D	Stakeholder E
Capability	5	25	10	40	20

Salience Estimates	Stakeholder A	Stakeholder B	Stakeholder C	Stakeholder D	Stakeholder E
Salience	.10	.30	.5	.20	.50

Flexibility Estimates	Stakeholder A	Stakeholder B	Stakeholder C	Stakeholder D	Stakeholder E
Flexibility	.10	.30	.5	.50	.20

Taking the information from the above hypothetical tables into a condensed table shows the raw factors involved which affect Stakeholder C's position in a contest between D and B:

Stakeholder	Capability	Salience	Flexibility	Difference in Utility	= "Votes"
Stakeholder A	5	.10	.10	-1.00	-.05
Stakeholder B	25	.30	.30	-.50	-1.125
Stakeholder C	10	.5	.5	.40	1.00
Stakeholder D	40	.20	.50	.50	2.00
Stakeholder E	20	.50	.20	1.20	2.40

In a contest between Stakeholders D and B, Stakeholder C's preference comes from the difference of utility for D over B (which is calculated by subtracting B's utility from D's or, .60 -.20 = .40). The overall raw "votes" applied to the contest is calculated as Capability x Salience x Flexibility x Diff. in Utility. Positive numbers are support for stakeholder D and negative values represent support for stakeholder B.

The position value is further refined by third party marginal "votes" aggregated for (+) or against (-) contestants D and B using the same Capability x Salience x Flexibility x Diff. in Utility calculation.[75] As in the real world stakeholders' positions may have to be adjusted when faced with negotiations stacked up for or against their respective positions subject to the flexibility/resolve of the other stakeholders over the issue.

The model's issue position scale is similar in numerical construction to the other scales with the exception of the capability scale (where values may exceed 100). The position scale is constructed linearly of values ranged 0-100 with each value representing a degree of relative difference on an issue. The issue must be stated in a way where stakeholders can be assigned estimated values based upon each stakeholder's position on the issue relative to other stakeholders' views on the same issue.

The catalyst issue utilized for the position scale in this research is the divisive Bronze Soldier incident of April 2007 (see subsection 7.7 for more background and a thorough description

[75] see Bueno de Mesquita et al. 1984, 1992

of the incident). The issue caused quite an international commotion as the disposition of the monument ignited three days of rioting by ethnic Russians in downtown Tallinn as well as diplomatic flapping farther afield. The incident serves as a good proxy issue to empirically observe the forensic manifestations of the security "hedging" concept in Estonian security policy. The incident primarily involved two domestic stakeholders namely the newly elected Estonian government and the ethnic Russian population in Estonia. The local issue snowballed into an international brouhaha. The attractiveness of the Bronze Soldier incident as a proxy security issue for this research is the fact that a local Estonian domestic political issue brought not only Estonia into confrontation with the Russian Federation but also the EU and NATO by virtue of political and security institutional linkages.

The issue question below precedes the position scale used to assign positions for the full range of stakeholders involved in this research. The position scale is displayed here vertically and not horizontally for convenience of format:

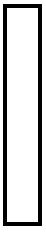
Which is an appropriate response/disposition regarding the Bronze Soldier monument?

0	**INTERNAL DOMESTIC MATTER - DESTROY MONUMENT**	**DESTROY**
9		
10	**INTERNAL DOMESTIC MATTER-RELOCATION OF MONUMENT**	**RELOCATE**
19		
20	**PRESSURE RUSSIAN FEDERATION TO MITIGATE PROTEST**	**NOPRO**
29		
30	**INTERMEDIATE WITH RUSSIAN MINORITY FOR RESOLUTION**	**INTER**
39		
40	**MULTILATERAL NEGOTIATIONS VIA DIPLOMATIC CHANNELS**	**DIPCHAN**
49		
50	**NEUTRAL STANCE - STATUS QUO**	**NEUTRAL**
54		
55	**LIMITED ECONOMIC + ENERGY EMBARGO**	**LIMITEDEC**
60		
61	**TOTAL ECONOMIC AND TRAVEL EMBARGO**	**TOTALEC**
69		
70	**DIPLOMATIC SANCTION**	**DIP**
79		
80	**PROTESTORS SIEGE OF ESTONIAN EMBASSY IN MOSCOW**	**SIEGE**
89		
90	**ETHNIC RUSSIAN MINORITY RIOTS IN ESTONIA**	**RIOT**
99		
100	**INCREASE MILITARY PRESENCE ALONG ESTONIAN BORDER**	**INCMIL**

The issue position scale from 0-100 represents a continuum of assumed and/or declared, actual and ideal positions taken by stakeholders involved in interactions over the issue. Values at the far ends of the scale (0 and 100) represent positions farther from the status quo located at the middle of the scale.

The majority of Estonian voters elected the Ansip government in March 2007 which ran on an issue-specific centrist platform of removal and relocation of the Bronze Soldier as opposed to destruction of it or the status quo. The issue scale for these local domestic stakeholders probably looked like the following:

Which is an appropriate response/disposition regarding the Bronze Soldier monument?



0	**INTERNAL DOMESTIC MATTER - DESTROY MONUMENT**
49	
50	**INTERNAL DOMESTIC MATTER-RELOCATION OF MONUMENT**
99	
100	**INTERNAL DOMESTIC MATTER-STATUS QUO**

There was political debate in Estonia which included discussion about destruction of the monument even within Ansip's own party to which candidate Andrus Ansip softened that position with his statement during a London address on 25 January 2007 by saying "Nobody is planning to destroy any monuments however relocation is another issue".[76] Initial positions on an issue scale can and will be affected by the dynamics of stakeholder interactions. Positions adjust to conditions associated with capabilities, salience, and flexibility/resolve. The forecasting model reflects these empirical realities of strategic stakeholder interactions.

7.7 Expectations, Beliefs and Actual Results

"Politics has often been called the "art of the possible." If economics is the study of the distribution of scarce resources, then politics is the competition for the rules that govern the distribution of those scarce resources. Ultimately, these possibilities are created and constrained by individual, groups, nation-states and their interactions".[77]

Expected results and beliefs are important factors to consider when looking at decision making in international political negotiations. Expectations of possible results may differ from actual results once the smoke has cleared the room. What a group believes about other actors or groups may not be borne out in actual decision results and so adjustments need to be made to stay in the game. The forecasting model updates stakeholder capabilities, salience, flexibility and position dynamically. Bayesian updating based on positions and credible proposals characterize stakeholders' bargaining types and enhance the expected utility approach. The model provides an Actor Relationships typology output which is highly useful in characterizing stakeholder relationships under five "types". The five defined actor relationship types include those having "No

[76] Eestipäevaleht 2007.
[77] Kugler et.al. 2006. pp. 2.

Dispute", those supporting the "Status Quo", those which "Compromise", stakeholders who "Coerce" and finally "Clash" prone actor relationships. The model reflects stakeholders' social learning, opinion formation and expectations of interactions based on experience and observation.

7.8 End Game Rules

Just as in real world political negotiations, the amount of iterations and rounds cannot be determined inductively and the model reflects this reality by placing two rule conditions either of which must be reached to end the modeled stakeholder interactions. The modeled interactions are based on individual stakeholder interests but "utility" is collective in nature and so the end rules are heuristically determined by this collective nature.

The respective endgame rules are invoked when the group payoff is greater than the projected group payoff or, the group utility is greater than the projected group utility for a completed round. Both attained and projected amounts are then divided amongst all stakeholders to determine whether the average stakeholder's future welfare prospect in the next round would be greater than the current round's payoffs and utilities. If either of these projected values are lower than the previous round's attained values then the modeled interaction is ended. So if a 10 stakeholder group's utility and payoff values are 500 and the projected values are 490 then the current average stakeholder's value of 50 exceeds the projected average stakeholder's value of 49 and the end game rule is invoked.

7.9 Stakeholder Selection

Stakeholders for this research were chosen on the basis of three criteria related to the April 2007 Bronze Soldier issue. The three criteria are: (1) being local primary stakeholders to the issue such as official Estonian government bodies or posts, the Russian ethnic minority in Estonia, and official Russian Federation bodies or posts, (2) geographically defined regional stakeholders such as Belarus, Iceland and Ukraine, and (3) tertiary institutional stakeholders such as formal EU and NATO member states. While BIC (Brazil, India, China) countries may have an interest in negotiations, the research literature supports analysis limited to neighboring states and powerful states without compromising the adequacy of results (Maoz 1996, Lemke and Reed 2001).

The official EU "OSCE: Statement of the European Union on recent developments" at the 664th Meeting of the Permanent Council concerning the Bronze Soldier conflict between Estonia and Russia over the symbol substantiates the inclusion of the most of the stakeholders used in this research paper. This EU declaration states "The EU is deeply concerned about recent developments in the relationship between one of its Member States and the Russian Federation" and continues stating that„The Candidate Countries Turkey, Croatia and the former Yugoslav Republic of Macedonia, the Countries of the Stabilisation and Association Process and potential candidates Albania, Bosnia and Herzegovina, and Montenegro, as well as EFTA countries Iceland and Norway, members of the European Economic Area, align themselves with this statement."[78] The divided island of Cyprus is included in the stakeholder listing due to its formal EU status eventhough Greek and Turkish stakeholders are deemed sufficient for the analysis due to their respectively high influence over the island's preferences. Peripheral status, small size, and scope of

[78] German 2007 EU Presidential Home Portal 2007.

analysis considerations of this research led to the exclusion of Macedonia, Bosnia and Herzegovina, and Montenegro. Georgia which straddles both the European and Asian continents and is highly relevant to Russia-EU-NATO politics is omitted from the stakeholder listing because it does not fulfill any of the three aforementioned criteria.

The following descriptive table provides a comprehensive listing of the 65 stakeholders used in this research and analysis:

STAKEHOLDER	ACRONYM
USA PRESIDENT	USAPRES
USA SEC. OF STATE	USASECST
USA CONGRESS	USACONG
USA MILITARY	USAMIL
EU EUROPEAN COMMISSION	EUEC
EU EUROPEAN PARLIAMENT	EUEP
NATO SEC. GENERAL	NATOSG
ESTONIA PRIME MINISTER	ESTPM
ESTONIA FOREIGN MINISTER	ESTFM
ESTONIA RIIGIKOGU	ESTRIIG
ESTONIA RUSSIAN MINORITY	ESTRUSMIN
LATVIA PRIME MINISTER	LATPM
LATVIA FOREIGN MINISTER	LATFM
LITHUANIA PRIME MINISTER	LITPM
LITHUANIA FOREIGN MINISTER	LITFM
FINLAND PRIME MINISTER	FINPM
FINLANDPRESIDENT	FINPRES
FINLAND FOREIGN MINISTER	FINFM
FINLAND EDUSKUNTA	FINEDUSK
FINLAND MILITARY	FINMIL
GERMANY CHANCELLOR	GERPM
GERMANY PRESIDENT	GERPRES
GERMANY FOREIGN MINISTER	GERFM
FRANCE PRIME MINISTER	FRANPM
FRANCE PRESIDENT	FRANPRES
FRANCE FOREIGN MINISTER	FRANFM
RUSSIA PRIME MINISTER	RUSPM
RUSSIA PRESIDENT	RUSPRES
RUSSIA FOREIGN MINISTER	RUSFM
RUSSIA DUMA	RUSDUMA
RUSSIA MILITARY	RUSMIL
UK PRIME MINISTER	UKPM
UK FOREIGN MINISTER	UKFM
SWEDEN PRIME MINISTER	SWEPM

SWEDEN FOREIGN MINISTER	SWEFM
NORWAY PRIME MINISTER	NORPM
NORWAY FOREIGN MINISTER	NORFM
DENMARK PRIME MINISTER	DENPM
DENMARK FOREIGN MINISTER	DENFM
POLAND FOREIGN MINISTER	POLFM
BELARUS PRIME MINISTER	BELPM
BELARUS FOREIGN MINISTER	BELFM
UKRAINE PRIME MINISTER	UKRPM
UKRAINE FOREIGN MINISTER	UKRFM
NETHERLANDS PRIME MINISTER	NETHPM
BELGIUM PRIME MINISTER	BELPM
GREECE PRIME MINISTER	GREEPM
ICELAND PRIME MINISTER	ICEPM
ITALY PRIME MINISTER	ITAPM
PORTUGAL PRIME MINISTER	PORPM
SPAIN PRIME MINISTER	SPAPM
AUSTRIA FOREIGN MINISTER	AUSFM
IRELAND FOREIGN MINISTER	IREFM
CYPRUS FOREIGN MINISTER	CYPFM
MALTA FOREIGN MINISTER	MALFM
CZECH FOREIGN MINISTER	CZEFM
HUNGARY FOREIGN MINISTER	HUNFM
LUXEMBOURG FOREIGN MINISTER	LUXFM
BULGARIA FOREIGN MINISTER	BULFM
ROMANIA FOREIGN MINISTER	ROMFM
SLOVAKIA FOREIGN MINISTER	SLOKFM
SLOVENIA FOREIGN MINISTER	SLOVNFM
ALBANIA FOREIGN MINISTER	ALBFM
CROATIA FOREIGN MINISTER	CROFM
TURKEY FOREIGN MINISTER	TURFM

Originating from a domestic issue, the April 2007 Bronze Soldier event expanded into an international incident and the primary inclusion of stakeholders' foreign ministries reflects this fact. Certain stakeholders are represented not only by their respective foreign ministers but by their executive, legislative, and military branches. These same-state multiple inclusions are meant to reflect the diverse natures and interests of stakeholders from the same state predicated on three factors, these being; (1) a primary stakeholder to the conflict such as Estonia and Russia in the bronze Soldier, (2) geographical proximity to the conflict point such as Finland or Germany and (3) a high level of capability or "reach" of bigger more powerful states such as the United States. Executive stakeholders such as presidential or prime ministerial offices are assumed to represent political action and grander strategic goals. Foreign ministerial, legislative and military stakeholders are assumed to be interested in pragmatic or more area-specific immediate goals.

These same-state stakeholder official mixtures present a range of variable values in an attempt to capture overall interests of the same nation stakeholder.

This research applies more stakeholders from states which are primary parties to the issue of contention such as Estonia and the Russian Federation. The research also utilizes more same-state stakeholders for states closer to the geographical point of the issue or institutionally-linked states such as the United States which have powerful capabilities for global "reach". This is done under the assumption that for states closer to the conflict zone or for large institutionally-linked powerful states more same-state stakeholders are concerned and exert increased political or diplomatic energy on the issue. The research will also apply more stakeholders for larger influential regional states such as Germany. NATO member states and EU member states farther from the geographical "flashpoint" and smaller in size will be represented in the model solely by their respective Foreign Ministerial offices.

For example, Portugal, Turkey and Iceland have varied stakeholder interests in Estonian-Russian relations and resolution of the Bronze Soldier issue. Portugal, Turkey and Iceland are assumed to have a lower salience on an issue attributable to geographical distance or limited capability considerations and are therefore deemed sufficiently represented in the model by their respective Prime Minister or Foreign Minister. Estonia, the Russian Federation and the United States are assumed to have higher salience over an issue for geographical proximity and capability "reach" considerations thereby having more stakeholders utilized by the model in an attempt to capture a range of same-state variables and positions.

More concerned same-state stakeholders for small states such as Estonia which are close to the point of dispute reflect the fact that geographical distance is still a major factor in security-related negotiations. Confirmation of this can be seen in the reaction of Poland and the Baltic states to the Russian-Georgian war of 2008. These states lobbied for an immediate extension of NATO rapid reaction defense capabilities in the Baltic and these capabilities were implemented by NATO around or subsequent to the war.[79] These time-reliant NATO programs include air-policing through the Quick Reaction Alert and Intercept system (QRAI), and the Eastern Guardian defense contingency. [80] Temporal distance has shrunk and international relations have become more viral through instant communications and technological advances. Geographic space and time are still major concrete concerns of state security and in security negotiations.

7.9 Research Data Estimation

Data estimation for use with the model is dependent upon issue specific as well as general knowledge. The ability to make initial judgments of stakeholder capability (influence, clout, power), salience (importance), resolve (flexibility) and position on an issue, is conducive to rank stakeholders relative to other stakeholders concerning the issue. As with any enterprise, contribution of expert knowledge is highly crucial to airtight accuracy of predictive results. However, general estimations of data by a semi-knowledgeable scholar who understands the nuances of the issue provides sufficient and satisfactory base data to feed into the model. The initial data may be amended subsequently and fine tuned by knowledgeable expert consultations. For

[79] The Economist 2010.
[80] The Guardian 2010.

purposes of this research estimation of the input data can be treated as qualitatively accurate as assembly time constraints and level of knowledge allowed. The estimations have been carried out by an International Relations graduate student/scholar with issue-specific knowledge, scholarship in regional security and politics, and regional language aptitude including Estonian, Finnish and Russian.

The data estimated in this research consists of the previously explained capability, salience, resolve, and position variables. All variables are measured on scales of 0-100 with the following exceptions and caveats:

(1) the inability for a stakeholder, at least initially, to have a capability value of 0 (no stakeholder is assumed to have zero capability) and the possibility of a stakeholder to have a capability value exceeding 100 (to accommodate a possibility of a hegemonic superpower or dictator with capabilities many times that of the smallest stakeholder at the lower end of the range).
(2) salience must be greater than 0 and less than 100 on a scale of 0-100.
(3) resolve can be valued across the 0-100 scale including 0 and 100 values.
(4) stakeholders relative positions on an issue are assigned values on a scale of 0-100.

The capability variable for each stakeholder was estimated on a relative basis to provide the model with preliminary estimated values. Capability is comprised of potential influence over an issue and can be derived from political, economic, military, population, natural resource, and goodwill criteria. Portugal and Turkey can be compared through relative GNP, population, and raw military power statistics. However issue specificity does affect these comparative variables. For example, what amount of capability can the Portuguese foreign minister exert in negotiations relative to the Turkish foreign minister on a security issue concerning Basque separatists in Spain? How about the same actors on a similar security issue concerning Kurdish separatists in northern Iraq? Geography in these instances can be discerned to affect capability to influence as well as size. The United States with its global "reach" and recent concerns over terrorism can be assumed exempt from geographical constraints concerning a terrorist issue.

The estimation in this research primarily involves relative rankings of stakeholders based on political, military and economic capabilities to exert influence subject to geographical proximity to the conflict point and state size. Because this research concerns state security issues military capability serves as the primary factor in capability data estimation for input into the model. Stakeholder states were ranked from low to high according to estimated military capability and GDP figures. Then states were manually and qualitatively related to each other on the basis of these military and GDP rankings. The GDP figures were used as a ranking control to identify states with militaries disproportionate to economies or vice versa. Highly militarized or undermilitarized states could be adjusted in this way keeping the capability rankings relatively accurate. The following is an example of the typical capability ranking methodology used in this research. Albania, Luxembourg and Slovenia were assigned capability values of 5. Hungary and the Czech Republic were estimated to have military capability twice those of Albania, Luxembourg and Slovenia, and so were assigned capability values of 10. Spain and Italy were estimated to have 5 times the military capability of Hungary and the Czech Republic and so were assigned capability values of 50. The Netherlands was estimated to have 10% more military capability than Spain and

Italy and was closer to the physical point of contention therefore it was assigned an estimated capability value of 55. The United States was determined to have 10 times the military power and projection capability of the Netherlands and so was assigned a total estimated capability value of 550. If applicable, total state stakeholder capability variables were then divided amongst same-state stakeholders subject to geographical proximity and size of state criteria. For example the United States as a stakeholder was estimated to have an overall capability value of 550 on the 0-100+ scale. This capability was divided amongst the following same-state stakeholders as USPRES 160, USASECST 150, USACONG 140, and USAMIL 100. This same capability estimation methodology was applied for all stakeholders in the research. Initial estimations of capability values were formed by placing stakeholders manually on a 0-100+ scale. These values were adjusted manually to reflect relative potential capabilities affecting the Bronze Soldier issue subject to geographical proximity and state size. Estonian total capability was estimated as much higher than a similar sized European state because the center of dispute was in Tallinn where the government had sovereign influence over the issue and unchallenged local security enforcement capability. The Data Appendix provides 3 separate Scenario tables with a comprehensive listing of stakeholders' initial capability estimates used in each Scenario of this research and analysis.

The salience variable for each stakeholder was estimated on a relative basis to provide the model with preliminary estimated values. Salience comprises the relative importance of the issue at hand. Once Portugal (EU/NATO) and Turkey (NATO,non-EU)are compared capability-wise, each state's salience on the issue must be estimated. This is dependent on knowledge of issues of importance and geographic locations of stakeholder states. Turning to the previous example of capability estimation, what amount of salience can the Portuguese foreign minister have relative to the Turkish foreign minister on a security issue concerning Basque separatists in Spain? How about the same actors on a similar security issue concerning Kurdish separatists in northern Iraq? Turkey can be assumed to have a higher salience relative to Portugal on an issue concerning Kurdish separatists in northern Iraq. The opposite can be assumed about an issue concerning Basque separatists. Again, geographical proximity in these instances can be discerned as a factor contributing to issue salience. The United States can be assumed to have some amount of salience to both separatist issues due to the fact that all of the aforementioned states are institutionally bound in NATO. Separatism is a security issue after all. However, the United States with its global "reach" has a special relationship with Iraq as its occupying power as well as a geopolitical interest in an intact Turkey. For these reasons salience concerning a Kurdish issue would be higher for Turkey and the United States than salience regarding Basque ETA separatism which primarily concerns Spanish and French domestic politics with a spillover effect in Portugal.

The estimation of initial salience values in this research are formed by taking into account geographical proximity and institutional linkages of stakeholders (issues which concern stakeholders with common alliance or institutional memberships such as NATO and the EU). This involves relative rankings of stakeholders based on the question: On a scale of 0-100 how important is this issue to the state or stakeholder concerned?

Preliminary estimations of salience values were formed by ascertaining, through qualitative research including stakeholder statements and actions, where stakeholders could be placed relative to other stakeholders on the importance of the issue on a scale from 0-100. The same stakeholder statements and actions to substantiate stakeholder selection for this research can

be equally applicable in deriving salience values. The official EU "OSCE: Statement of the European Union on recent developments" at the 664th Meeting of the Permanent Council concerning the Bronze Soldier conflict statement is evidence of increased EU institutional salience when it states "The EU is deeply concerned about recent developments in the relationship between one of its Member States and the Russian Federation." Based on this statement, most EU stakeholders were assigned high salience estimates on the Estonian issue and also assigned a 20 on the position scale (meaning "RELOCATE") which was the Estonian government's policy. In addition, qualitative historical, political, and regional research on the controversy surrounding the Bronze Soldier monument in Tallinn was combined with geographical proximity, state size, and institutional relations research (EU and NATO membership relations) to qualitatively estimate these initial salience estimates for other non-EU, non-NATO stakeholders such as Belarus and Ukraine. The Data Appendix provides 3 separate Scenario tables with a comprehensive listing of stakeholders' initial salience estimates used in each Scenario of this research and analysis.

The resolve-flexibility variable for each stakeholder represents stakeholders' determination or flexibility related to its' position on an issue. The variable was estimated for each stakeholder's position on the Bronze Soldier issue based upon qualitative research of initial actions of stakeholders. The estimation of initial resolve-flexibility values in this research are formed by taking initial behavior of stakeholders once the local Estonian government proceeded with its plan to relocate the Bronze Soldier monument. This involves relative rankings of stakeholders based on the question: On a scale of 0-100 how flexible is our position regarding this disposition of this issue?

The 0 value of the scale represents exactly that: zero, or total inflexibility and absolute steadfastness to said stakeholder's position. Estonia and the Russian Federation were equally inflexible to positions outside of their own regarding the Bronze Soldier issue. The resolve-flexibility variable allows the forecasting model to gauge stakeholder sensitivity on position flexibility and issue resolution. The American stance on Soviet missiles in Cuba in 1962 was very inflexible as evidenced by extensive naval and military activity of the United States around Cuba. This steadfast behavior actually manifested in the waters off of Cuba confirms the low level of flexibility exhibited by the United States government on the issue. The Soviets were less resolute and eventually withdrew their missiles.

Flexibility can also be indirectly determined by differences of stakeholder behavior concerning similar events. For instance, in April 2007 anti-Estonian protestors were allowed to besiege the Estonian embassy in Moscow for a week and were monitored for days by the security police. The security services seemed to be very flexible by tolerating the disorder for a week. The same Russian security police behaved quite differently during April 2007 peaceful anti-Putin protests in Saint Petersburg and Moscow. These protests were swiftly quashed within hours with protestors beaten and violently placed into custody immediately.[81] Even chess master Gary Kasparov couldn't avoid being arrested and fined for protesting.

[81] The Telegraph 2007.

Security police behavior which allows an embassy to be besieged and breached by anti-Estonia protestors for a week is markedly contrasted with same security police department's violent reaction to peaceful anti-Putin protests. Both protests occurred in Russia in April 2007. This dichotomy of official Russian reactions to protests may likely be construed as official Russian government inflexibility on its position to the relocation of the Bronze Soldier in Tallinn. Based on such qualitative information and interpretation, an estimation of the resolve-flexibility variable for Russian Federation stakeholders would be located on the lower range of the 0-100 resolve-flexibility scale relative to other stakeholders.

A value of 100 on the scale indicates resolution of the issue to be of paramount importance meaning "let's get this issue resolved whatever the terms". In this case stakeholders with higher scalar values indicate high levels of flexibility to issue resolution. A value on the lower end of the scale indicates inflexibility of a stakeholder's position on the issue.

Initial estimations of stakeholder resolve-flexibility values were formed by ascertaining, through qualitative research of stakeholder statements and actions, where stakeholders could be placed relative to other stakeholders on the resolve-flexibility scale from 0-100. Qualitative observation of stakeholder official statements and behavior surrounding the Bronze Soldier controversy was coupled with institutional (NATO and EU) statements on the issue to obtain general estimates of resolve. For individual stakeholders where qualitative information was unavailable a "middle of the road" value of 50 was assigned which was the case for 32 of the 65 stakeholders in this research. This 50/50 resolve value serves as a sufficient initial estimate giving stakeholders a 50/50 chance on flexibility. The forecasting model utilizes these inception values and these values are dynamically adjusted up or down the scales after each calculated round according to equilibrium conditions for each stakeholder in negotiations over the issue. Three separate Scenario tables with comprehensive listings of stakeholders' initial resolve/flexibility estimates used in each Scenario of this research and analysis are found in the Data Appendix.

The aforementioned 3 variables are combined with an issue position scale onto which stakeholders are assigned spatially represented values. The position scale for this analysis (depicted vertically) on which stakeholders are located is the following:

Which is an appropriate disposition regarding the Bronze Soldier monument?

0	**DESTROY**		
5			
10	**RELOCATE**	MAJORITY OF STAKEHOLDERS	
15			
20	**NOPRO**	SWEPM	SWEFM
25			
30	**INTER**		
35			
40	**DIPCHAN**	UKRPM	
45		UKRFM	
50	**NEUTRAL**		
55	**LIMITEDEC**	BELPM	BELFM
60	**TOTALEC**		
65			
70	**DIPLOSANC**		
75		RUSPM	
80	**SIEGE**	RUSPRES	
85		RUSFM	
90	**RIOT**	ESTRUSMIN	RUSDUMA
95			
100	**INCMIL**	RUSMIL	

As the previous scale shows, a majority of stakeholders' positions on the issue were initially assigned the 10 value ("RELOCATE") on the scale or where the domestic Estonian government's position is located. This value assignment for most EU stakeholders is justified and substantiated by the EU 664th Meeting of the Permanent Council OSCE declaration concerning the Bronze Soldier dispute where it states, "Concerning the events in Estonia, the EU considers the relocation of the Tõnismäe grave marker (Bronze Soldier) and the transfer of the remains of soldiers buried on Tõnismäe to a war cemetery as sovereign decisions of the Estonian government based on Estonian law." Most stakeholders' initial positions therefore support the treatment of the issue as a sovereign domestic matter and reflect the official EU and OSCE position supporting the Estonia government decision to relocate the Bronze Soldier.

The remaining stakeholders with assigned values other than 10 are identified on the right hand side by their respective acronym. Sweden for instance took a more compromising position (20 value on the scale) which was researched and reasonably speculated to be linked to its then upcoming 2009 EU Presidency and negotiations with Russia over the Nordstream pipeline project where "Sweden had to keep up appearances and to stay impartial and

neutral".[82] Belarus stood to gain from a limited economic embargo in the form of diverted energy transit supplies when "Russia would cut rail exports to Estonia by 2 million tonnes in the next 1-2 months. That would be the bulk of trade on the route, which carries 25 million tonnes a year, a quarter of Russia's oil products exports.[8384] Hence a Belorussian position assigned at the 55 value on the position scale meaning "Limited Economic Embargo".

Russian official positions ranged on the higher side of the scale reflecting the Duma's extreme request for the Estonian government to resign over the issue, as well as official tolerance of disruptive attacks by protestors on Estonian and Swedish diplomats and the Estonian embassy in Moscow.[85] This official tolerance of public disorder and breach of diplomatic protocol must be implicitly assumed to reflect a challenging official Russian Federation position on the issue. The Russian military is assumed to desire to flex its capability along the Estonian-Russian border as alluded to in an article in Komsomolskaya Pravda which states "The Pskov (army) division is not far off, a short quick march and Tallinn falls,"[86] Fellow CIS participant state Ukraine's diplomatic assuage is reflected by a its more moderate value on the position scale (40-45 scale value, "DIPLOMATIC CHANNELS") determined by this research to be linked to its anticipated July 2007 "meeting of the NATO-Ukraine Commission (NUC) to mark the tenth anniversary of the signing of the Charter on a Distinctive Partnership between NATO and Ukraine."[87] For a comprehensive listing of individual stakeholders' initial position estimates used in this research and analysis see the position table in the Data Appendix.

7.10 The April 2007 Bronze Soldier Incident – A Contentious Catalyst for Stakeholders

7.10.a Brief Chronology of Events

22 September 1944- Red Army enters Tallinn, an uncontested and "open city".

May 1945 - Monument commemorating fallen Red Army soldiers reburied in Tallinn at present site in May 1945. Places of death and identities of 13 graves unconfirmed by Soviet military sources.

22 September 1947– "Liberator's Monument" erected on Tõnismägi in Tallinn. Herein referred to as "The Bronze Soldier".

2006- March 2007 elections – Political discussions and center-right election promises regarding destruction or, removal and relocation of monument to a military cemetery.

26 April 2007 – Riots by ethnic Russians erupt in Tallinn upon news of impending removal and relocation of monument from city center to military cemetery.

[82] Diplomaatia 2010.
[83] Reuters 2007.
[84] Reuters 2007.
[85] German 2007 EU Presidential Home Portal 2007.
[86] Reuters 2007.
[87] NATO Portal 2007.

27 April 2007 – Riots by ethnic Russians in Tallinn. Monument removed and relocated to the military cemetery. Twelve sets of human remains disinterred from under adjacent bus stop and sent for DNA laboratory testing.

27 April 2007 – Siege of Estonian embassy in Moscow by protesters begins.

5 May 2007 – EU issues statement critical of Russian official behavior over Bronze Soldier dispute.[88]

8 May 2007 – Monument re-commemoration at the Tallinn military cemetery on VE day observance.

9 May 2007 – Siege of Estonian embassy in Moscow by protesters ends.

18 May 2007 – Estonian Forensic Services hand 12 DNA profiles of 1 woman and 11 men buried at site over to the Embassy of the Russian Federation and the Russian and Ukrainian Red Cross organizations. [89]

The Bronze Soldier incident provides good insight into post-Soviet political, social, and economic relations between Estonia and Russia, and the dynamics of NATO and the EU institutional linkages. The incident highlights divisions over historical viewpoints and current perspectives and realities in contemporary Eastern Europe. Understanding the conflict over the monument provides a microcosmic example of larger scale relations between NATO, the EU and Russia.

As a nation occupied by Nazi Germany, illegally annexed by the Soviet Union, and then emancipated by the collapse of the Soviet Union, Estonia has always been on the crossroads of historical and socio-political changes. These concrete historical factors have molded Estonian interests and preferences especially those concerning security. Studying events such as the Bronze Soldier provides students of international relations and political science valuable empirical observations and the ability to understand grander themes, trends and structures.

What for a casual observer seems to have been a dispute between different domestic forces in Estonia over a symbol, also is, depending on your frame of reference, a contention between two or more nations and expands into a multilateral dispute with NATO and EU institutional linkages. This section on the Bronze Soldier traces the contentious dispute from the domestic, through the regional interstate, to the international and institutional. This survey provides background and highlights the relevant factors to form a broader framework of understanding the stakeholders involved and their relationships over the symbol.

The monument as symbol provides the nexus for the incident, and leaving small details aside, the monument as symbol has contemporary significance for all sides. On the domestic level the two domestic stakeholders to the dispute are the elected Estonian government comprised of ethnic Estonian political parties and the franchised ethnic Russian political parties along with the non-enfranchised Russian ethnic minority.

[88] German 2007 EU Presidential Home Portal 2007.
[89] Delfi article 18 May 2007.

Before the Estonian elections of March 2007 there had been a debate in newspapers and between ethnic Estonian political parties of destroying or removing the Bronze Soldier statue. To many ethnic Estonians, the monument at the most symbolized occupation and, at the least, a vestige of history that didn't belong in Tallinn city center but in a military cemetery alongside war dead of many nationalities and other conflicts.

The election resulted in the ascendance of a centre-right government led by the Estonia Reform Party. Subsequently, Prime Minister Ansip made good on a pre-election promise to relocate the Bronze Soldier monument and graves to a military cemetery.[90] Some saw this move as a conciliatory effort to dull right wing calls for destruction of the monument. More moderate calls to relocate the symbol of occupation from the city center seemed conducive to appeasing ethnic Russian sentiment over the symbol with a dignified removal of the monument and reburial of the 12 Soviet military personnel in a military cemetery.

On 23 May 2006, Spokesman Stanislav Tšerepanov of the Russian Party in Estonia (Vene Erakond Eestis, or VEE) stated regarding the monument that "it is the only symbol in Estonia of the defeat of Hitler's Germany. It is the only monument in Estonia where we can bring flowers to ours fathers and grandfathers who were lost saving the world from fascism."[91] VEE had won .02% of the total votes in the Estonian election of 2007.

Relating the statements of the Estonian Reform Party, the Russian Party in Estonia (VEE), as well as the fact that the overwhelming majority of rioters and those arrested were ethnic Russians, it can be surmised that the existence of the monument exists as a symbol of past power in Estonia. The removal and relocation of said symbol represents Soviet, and by extension, Russian power receded.

With the collapse of the Soviet Union, Russian regional influence has shrunken and those Russians who had colonized[92] occupied Estonia after WWII came to understand the recent history of Russia through the experience of a Soviet post-WWII victorious power. Now after the collapse of the Soviet Union, these same ethnic Russians and their descendents are discomforted by change and are adapting to changing power structure manifestations in Eastern Europe. The relocation of the monument by the national government of Estonia was one such manifestation.

What about the symbol and the dispute over its disposition between the states of Estonia and the Russian Federation? The state to state level of relations over the symbol as of May 2007 was in contentious gridlock. The asymmetric nature of the dispute expanded from the domestic to the regional interstate concern, and then even farther afield through Estonian institutional linkages with NATO and the EU.

Public officials across Russia lambasted the decision to relocate the monument. Sergei Lavrov, the foreign minister, called the Estonian relocation decision a "blasphemous attitude towards the memory of those who struggled against fascism".[93] Officially, Russia was not pleased

[90] Postimees 23 May 2006.
[91] Postimees 23 May 2006.
[92] Parming 1972, 1980.
[93] The Telegraph 5 February 2007.

with the removal and relocation of the monument. Even more indicative of Moscow's revulsion was the suspected Russian cyberattack upon the computer infrastructure of Estonian networks[94], as well as the rerouting of energy and cargo transit from Russia, around Estonia and through Latvia and Finland.[95] These severe reactions are indications of the level of Russian Federation frustration over the sovereign Estonian domestic decision to relocate the symbol.

In a strange twist to this story, the frustration over the incident is still evident in the construction by Russia of an exact replica of the Bronze Soldier in Krasnaya Polyana near Sochi, the site of the 2014 Winter Olympics.[96] Russia did not have the ability to control the location of the Bronze Soldier in Tallinn, and so Russia is building a replica on Russian soil in time for the Winter Olympics. This gives insight into the present official mindset of Russia and the power of the symbol. Estonia sidelines the symbol domestically, and Russia attempts to internationalize the symbol by building a replica at the Olympic Games site. One could almost imagine an amicable settlement between the parties three years ago with the original Bronze Soldier monument being "loaned" to the Russian Federation for the 2014 Winter Olympics.

Russia pointed to the relocation as evidence of "fascist" behavior and discrimination against the Russian ethnic minority by the Estonian government. The Estonian government defended the actions taken to relocate the monument as the right of a sovereign newly elected government to implement platforms and policies which it campaigned on.

Initially, at different levels of the EU, the European Parliament, the Council of Europe and other official posts, there were varied statements criticizing the relocation, giving support for Estonia, criticizing Russia, and making conciliatory remarks to both parties of the dispute, but initially no single official EU statement on the dispute was issued. The EU as a whole seemed to treat the policy as a domestic issue and as long as the demonstrations were handled in legal and civil ways then there seemed to be no problem. Institutional salience on the issue can be interpreted as initially low. Eventually, as the rioting in Tallinn continued and the Estonian embassy was being besieged in Moscow, the EU through the German President's May 3, 2007 communication, criticized Russian confrontation and reinforced the fact that the decision was a Estonian domestic issue handled within the legal framework of the EU. This compensatory EU action predicated on a threat to Estonian security provides empirical evidence supporting the conceptual "hedging" argument of this research.

Then as now, the EU is primarily concerned with upholding member state security within the EU standards of human rights in all constituent member states such as Estonia. The European Commission against Racism and Intolerance (ECRI) December 2009 report states "Since the publication of ECRI's third report on Estonia on 21 February 2006, progress has been made on a number of fields covered by that report."[97] For the EU, it seems as long as member state security is maintained within EU legal and human rights standards then domestic disputes over relocation of monuments are relegated to local politics.

[94] BBC Online 17 May 2007.
[95] Kommersant 25 April 2008.
[96] Голос России 2 May 2010.
[97] ECRI Report 12/2009 P. 7.

By virtue of Estonian EU membership, all residents of Estonia enjoy universal human rights and blanket legal protection no matter what their official or unofficial citizenship. In fact, in 2006 an ethnic Russian woman with unspecified citizenship sued through the Estonian courts for the right to Estonian citizenship despite the legally disqualifying fact that she had been on the payroll of a foreign security service. This case reached to the highest level of litigation and was handled by the Supreme Court of Estonia. [98] The case was rejected after the Court found no violation of Plaintiff Gorjatsova's human or political rights[99] under European Union law. A major consideration for the EU is for member states to uphold universal legal and human rights defined and codified in the European Union legal constitution.

7.10.b Domestic Estonian Politics and the Symbol

In retrospect, it seems as if the Estonian Reform Party and the Ansip government had made a good calculation of the risks and rewards over relocation of the symbol. In an article, somewhat erroneously titled "Tallinn: A Year without the Bronze Soldier", Estonian PM Ansip is quoted as saying, "Estonia didn't lose anything from "bronze night." On the contrary, the air is cleaner and the feelings of government are greater than a year ago."[100]

This feeling of "greater government" seemed to be substantiated by political analysts also, as reflected in statements such as "Ansip is good in demagogy and this has helped him to avoid larger protest actions and ensured that Reform Party remains high in popularity rankings. I would not be surprised if Ansip would continue as PM also after the next general elections. As prime minister, Ansip benefits both Reform Party and the government image."[101] This beneficial trend has continued for Ansip as he has been reappointed as Prime Minister after the April 2011 Riigikogu elections.

The "greater government" substantiation appeared in the title of another article, "Andrus Ansip celebrated 5 years as prime minister" in which is stated, "Public polls show that Reform Party's voters are very young people who have just entered the voting age. These young people are also very naive and waver in their political preferences. As for the support of the young Russian generation, Ansip alienated it with his Bronze Soldier crisis," said Toots. While four years ago about 20% of Russian voters supported the Reform Party, the figure today is close to zero."[102]

The relational aspect in the previous paragraph is one in which the solidification of the Estonian "feeling" of "greater government" was attained through the alienation of the ethnic Russian population over the symbol. The bronze symbol serves in this respect as a litmus test over where the parties to the dispute and their power-derived influence, lie in actual and virtual political space. This analogy extends from local politics to the international arena and substantiates the notion that external stakeholders such as Russia continue to have high salience and inflexibility concerning post-Soviet Estonian domestic issues such as the Bronze Soldier. The EU and NATO have high salience over these same issues albeit opposite in position to the Russian Federation. The

[98] Estonian Supreme Court Website. 2009
[99] Council of Europe Record.2008.
[100] Kommersant 25 April 2008.
[101] Baltic Business News 15 April 2010.
[102] Baltic Business News 15 April 2010.

symbol as such provides a means to identify the relative positions of all stakeholders whether these are NATO, EU or external stakeholders.

The Molotov-Ribbentrop pact in the pre-WWII allocation of European geographical space to spheres of influence was manifested in the 1939-1940 deportations to Siberia of thousands of Baltic citizens. After the German attack on the Soviet Union, an extension of German power reached over Estonia into Russia, then receded, and was filled in by a victorious Russian-dominated Soviet "feeling" of greater governance which lasted 46 years in the case of Estonia. The cycle completed in 1991 with the dissolution of the Soviet Union and the reinstitution of independence in Estonia. A recession of Soviet Russian influence over actual and virtual political space is being filled in by an Estonian greater governance and therefore, by extension, an EU greater governance bolster by a NATO security presence. Symbols remain contentious testaments to past power well after the events these commemorate.

The monument as symbol is with each passing generation becoming historical residue and the Russian ethnic minority in Estonia is a legacy of a past political system receded. This human legacy is transforming from a majority in the old Soviet system to a minority in Estonia and the wider EU. The same Russian minority that doesn't vote with its feet and return to Russia, is testament to the universal and transcendental nature of home. Symbols such as the Bronze Soldier can occasionally provide a window apart from everyday practicalities. When human beings contend over the disposition of symbols they open just such a window through which political, social and economic relations can be discerned.

8. Research Process – Data, Model, Results and Interpretation

All estimated data for the each stakeholder consisting of capability, salience, resolve and position variables will be input into model. Position values are assigned on the previously explicated issue position scale. The issue for this research is the disposition of the Bronze Soldier monument in Tallinn. These initial input variables will be held constant for all stakeholders so that each scenario begins (Round 1) with exactly the same input variables (except for the salience variable which is conditionally increased for certain stakeholders in Scenarios 2 and 3 as defined below).

The analysis process consists of running three separate scenario simulations through the forecasting model which concern the same security-related issue, the Bronze Soldier. The three simulated scenarios will be identified respectively as (1) Estonia Pre-NATO/EU, (2) Estonia Post-NATO and (3) Estonia Post-EU. All input variables will be held constant in each scenario except for the salience input. Again, the salience variable is an indicator of the degree of importance each stakeholder assigns to an issue. The assumption behind this input variability is that reciprocal salience increases for <u>all</u> stakeholders who are formally tied by institutional arrangements such as NATO and the EU regardless of their geographical proximity or size. Outside of this institutional requisite, additional increased salience applies to primary parties to the Bronze Soldier conflict (Russia), those stakeholders allied to a primary party to the conflict, bordered by NATO or EU states, or are regional stakeholders (Belarus, Ukraine), or a large power with capability "reach" (United States).

The first scenario, Estonia Pre-NATO/EU, will serve to represent a hypothetical stakeholder interaction over the contentious issue of the Bronze Soldier before Estonia had NATO and EU membership. This "what-if" scenario presents a hypothetical look into the Bronze Soldier incident which happened in 2007 three years after Estonia joined NATO and the EU. This first scenario provides a comparative foundation for the other two scenarios.

The second scenario, Estonia Post-NATO, represents contentions over the same Bronze Soldier issue after Estonia joined NATO in March 2004. All initial input variables in this second scenario remain unchanged from initial input variables in the first scenario except for salience. In this second scenario, salience is raised 5 scalar points for each NATO stakeholder. This reflects the assumed increased importance an Estonian security issue presents fellow NATO institutional members as Estonia represents a formally inducted member of NATO. In this second scenario, salience is also increased by 5 scalar points for Russia, Belarus and Ukraine because these states are either a party to conflict with NATO member Estonia (Russia), are allied to a primary party to the conflict or are bordered by NATO alliance member states (Belarus and Ukraine).

The third scenario, Estonia Post-EU, represents contentions over the Bronze Soldier issue after NATO member Estonia joined the EU in May 2004. All input variables in this third scenario remain unchanged from those in the second scenario except for salience. In this third scenario, salience is raised 5 scalar points for each EU stakeholder to reflect the increased importance to EU institutional members of contentious negotiations over Estonian security-related issues as a formally inducted member of the EU. As in the second scenario, salience in this third scenario is further increased by 5 scalar points for Russia, Belarus and Ukraine because these states are either a primary party to conflict with EU member Estonia (Russia), are allied to a primary party to the conflict or are bordered by EU member states (Belarus and Ukraine).

The following chart depicts the variations of salience across the three different scenarios for different stakeholders:

STAKEHOLDER	SCENARIO (1) - PRE-NATO / EU	SCENARIO (2) - POST-NATO	SCENARIO (3) - POST-EU
FINNISH FOREIGN MINISTER	90	90	95
TURKISH FOREIGN MINISTER	10	15	15
CZECH FOREIGN MINISTER	10	15	20
RUSSIAN FOREIGN MINISTER	80	85	90
BELARUSSIAN FOREIGN MINISTER	30	35	40
UKRAINE FOREIGN MINISTER	25	30	35

NATO/EU MEMBER
NATO MEMBER
EU MEMBER

The chart shows initial Finnish salience already high (90 in Scenario 1) regarding the issue attributed to the fact that it borders both primary parties to the conflict. Salience for the Finnish FM is only raised once Estonia accedes to full EU institutional membership keeping in line with this research's defined formal institutional linkages being a salience raising criteria. Salience for Finland could have also been assumed to rise once Estonia joined NATO (Scenario 2) which put the military alliance on two of Finland's borders. However, despite the fact that NATO is a mutual defense alliance, the chances of Finland attacking either Norway or Estonia, or vice versa, can be considered nil based on the historic record. NATO has bordered Finland for 61 years without incident. Additionally Finland has recently received friendly overtures from larger NATO member states to join the alliance. Based upon these two reasons salience was not increased for Finland in Scenario 2.

Initial Turkish salience on the Bronze Soldier issue is low (10 in Scenario 1) primarily due to its lack of geographical proximity and size difference. Turkish salience only goes up when Estonia is formally tied to the institution of NATO (Scenario 2) but, because Turkey is not an EU member, initial salience remains unchanged from the second to the post-EU third scenario.

Czech salience is initially low (10 in Scenario 1) due to size and geographical distance factors but rises 5 points in post-NATO and post-EU scenarios as the Czech Republic and Estonia are formally tied through these respective institutional linkages.

Russian foreign ministerial salience on the issue is initially higher (90 in Scenario 1) due to being a primary party to the conflict, and geographical proximity to the conflict point. Salience for the Russian foreign minister only increases as Estonian memberships in NATO and the EU bring these institutions to the borders of Russia.

Initial foreign ministerial salience for Belorussia and Ukraine is low (20-30 range in Scenario 1) as Estonia is a small state not bordered by either country. Belorussian salience is slightly higher than the Ukraine's due to its military alliance with Russia and a slightly greater geographical proximity to the point of contention. Salience for both Belorussian and Ukrainian foreign ministers increases lockstep as the 2004 NATO and the EU expansions bring these institutions to each respective country's borders.

Once the data is run through the model for each respective scenario, the three scenario outputs are compared to each other, and the results are interpreted in the Discussion of Results and Interpretation section. The forecasting model's consistent framework coupled with a three comparative scenario scheme substantiates or negates the concept of "hedging" as defined in this paper, and the benefits of the "hedge" or "hedges", as well as explains and characterizes individual stakeholder and systemic effects of "hedging" if substantiated. Further qualitative information pertaining to factors and risks entailed with "hedges" outside the purview of the modeled interactions extend the quantitatively derived results to form a fuller understanding of security management behavior for Estonia and its impact on all stakeholders.

9. Discussion of Results and Interpretations

The comparative results of the three scenarios analysis using the forecasting model, subject to its underlying logic and assumptions, has confirmed the existence of the concept "hedging" in the Estonian case as defined in this research. The model results have confirmed "hedging" in two distinct ways, namely, (1) the forecasted spatial positions for the stakeholder universe and Estonia improves after all stakeholders negotiations on the issue are calculated through each complete scenario(moves spatially closer to the Estonian position on the issue once invoked by threat or dispute), and (2) there occurs an increased amount of stakeholders whose relations can be typified as clashing, coercing or compromising over the issue once invoked by threat or dispute (signifying increased NATO and EU action on the Estonian issue).

Also verified by the three-scenario comparative analysis results are three beneficial aspects of Estonian "hedging" through NATO and EU membership. These include the two aforementioned ways in which "hedging" was confirmed which can also be considered substantial benefits of NATO and EU institutional linkages to Estonia, namely (1) the entire stakeholder universe moves spatially closer to the Estonian position on the issue once invoked by threat or dispute, thereby supporting the Estonian position, and (2) more stakeholders are willing to expend resources on the issue as substantiated by increasing amounts of stakeholders whose relations can be typified in the model's Actor Relationships output as clashing, coercing

or compromising over the issue. The third benefit identified through the three-scenario analysis is (3) a decrease in time to resolve an issue which in the model is defined by completed rounds of stakeholder interactions over the issue in dispute. While not measured in hours and days by the model a decreasing amount of rounds of negotiations over the issue is considered beneficial to Estonia as well as the collective. The logic behind this assertion is that time provides the opportunity for other factors to negatively affect an unresolved dispute. The possibility of a festering open dispute exploding into a larger conflict is assumed to be greater over time. Unresolved local disputes instigated some of the largest violent conflicts between states during the 20th century such as the First World War.

The research affirms the positive efficacy of Estonia's security "hedging" strategy in the case of the Bronze Soldier dispute as modeled, under the assumptions and concepts of the forecasting model, and in accordance with the qualitatively and quantitatively interpreted results. Hedging and hedge shall herein be written without quotation marks.

9.1 Spatial Confirmation, Substantiation and Benefits of Hedging and Hedges

Key substantive criteria of this papers hedging argument is that salience logically increases for all institutional members regarding each member's security related issues. This should be reflected in the spatial position outputs of the modeled interactions over the contentious issue which, to be consistent with the defined hedge argument, must be favorable to the overall fellow member's position on the issue. Given theoretical assumptions based upon empirical observations, it can be logically concluded that, because of formal institutional linkages, increasing NATO and EU salience over the Estonian issue would bring more NATO and EU capability to bear in resolving the disputed issue. These increasing salience levels associated with institutional linkages (Scenarios 2 and 3) should be evident in the position output from the model. If the argument for the hedge is to be substantiated then the forecasted Issue Position for all stakeholders should be expected to spatially move closer to the Estonian government position on the disposition of the Bronze Soldier. Also, Estonia should not have to move far from their position on the domestic issue if the Estonian position is supported by resolute NATO and/or EU stakeholders, and the capabilities and salience these institutionally linked stakeholders can be expected to bear upon any external challenge to fellow member Estonia in a dispute over a security-related issue.

A second conceptual criteria of the hedging argument is that a hedge is a dynamic relation invoked by a threat or predicated on a challenge to security of an institutional member. The newly elected Estonian government's position on the issue of the relocation of the Bronze Soldier monument was challenged by the domestic Russian ethnic minority and by extension the Russian Federation. The institutional "hedge" confirming reactions are substantiated by the forecasting models spatial outputs.

The chart below shows the Issue Forecast for all stakeholders at the end of each Scenario (first row, in red). The chart also shows the initial issue positions (bolded) and forecasted positions at the end of each Scenario for the primary stakeholders in the Bronze Soldier dispute.

INITIAL AND FORECASTED ISSUE POSITIONS

	STAKEHOLDER ISSUE POSITION	SCENARIO (1) - PRE-NATO / EU	SCENARIO (2) - POST-NATO	SCENARIO (3) - POST-EU
STAKEHOLDER				
Issue Forecast		**31**	**29**	**28**
ESTPM	**10**	16	14	14
ESTFM	**10**	16	14	14
ESTRIIG	**10**	16	14	14
ESTRUSMIN	**90**	87	87	87
RUSPM	**75**	74	77	75
RUSPRES	**80**	79	79	81
RUSFM	**85**	82	83	85
RUSDUMA	**90**	93	88	87
RUSMIL	**90**	93	92	93

CHART NOTE: The Issue Forecast in the chart above is a smoothed average of the end game Round Forecast, the Round Forecast preceding it, and the Round Forecast following the end game Round Forecast. A Round Forecast is the salience and capability weighted median issue position for all stakeholders for a complete round of modeled negotiations over the issue. For example, the Issue Forecast for Scenario 1 is the average of Round Forecasts in Rounds 5, 6, and 7 because the end game round in Scenario 1 was round 6. The Issue Forecast for Scenario 2 is the average of Round Forecasts in Rounds 4, 5, and 6 because the end game round in Scenario 2 was round 5. The Issue Forecast for Scenario 3 is the average of Round Forecasts in Rounds 3, 4, and 5 because the end game round in Scenario 3 was round 4.

The following issue position scale used in the model plots the initial estimated positions (highlighted in blue) and forecasted positions taken from the chart above. These positions of the Estonian Prime Minister (ESTPM), Russian Prime Minister (RUSPM) and the Estonian Russian Minority (ESTRUSMIN) for all three Scenarios are represented in this following issue position scale. Additionally, the Issue Forecasts, which represent the forecasted

positions on the issue for all stakeholders as a group in each of the three Scenarios are also plotted (highlighted in red). The issue position scale follows:

		ISSUE POSITIONS
0	DESTROY	
5		
10	RELOCATE	ESTPM INITIAL POSITION
14		ESTPM ISSUE FORECAST-SCENARIOS 2 AND 3
15		
16		ESTPM ISSUE FORECAST-SCENARIO 1
20	NOPRO	
28		POST EU ISSUE FORECAST-SCENARIO 3
29		POST NATO ISSUE FORECAST-SCENARIO 2
30	INTER	
31		PRE-NATO/EU ISSUE FORECAST SCENARIO 1
40	DIPCHAN	
45		
50	NEUTRAL	
55	LIMITEDEC	
60	TOTALEC	
65		
70	DIPLOSANC	
74		RUSPM ISSUE FORECAST-SCENARIO 1
75		RUSPM ISSUE FORECAST-SCENARIO 3
75		RUSPM INITIAL POSITION
76		
77		RUSPM ISSUE FORECAST-SCENARIO 2
80	SIEGE	
87		ESTRUSMIN ISSUE FORECAST SCENARIOS 1,2,3
88		
90	RIOT	ESTRUSMIN INITIAL POSITION
95		
100	INCMIL	

Direction or spatial movement of overall group stakeholder position both confirms the hedging argument and is indicative of beneficial hedge efficacy for Estonia. Again, quotations marks have been omitted when referring to hedging and hedge. The modeled interactions across the three Scenarios have confirmed that Estonian membership in NATO and the EU and the associated increases in salience from such actions have had a beneficial directional impact on the Bronze Soldier issue position for Estonia. A domestic security threat to the newly elected Estonian government's domestic policy of relocating the Bronze Soldier

(ESTPM, initially 10 on the issue position scale, meaning "RELOCATE") was undertaken in the form of rioting in Tallinn by some sizable portion of the Estonian Russian minority (ESTRUSMIN, initially 90 on the issue position scale meaning "RIOT"). Once a challenge was initiated by the Russian Federation against the relocation of the Bronze Soldier (RUSPM, initially 75 on the issue position scale, between "DIPLOMATIC SANCTION" and condoning "SIEGE" of the Estonian embassy in Moscow) the dynamic hedge relations of NATO and EU memberships for Estonia are revealed.

The chart and corresponding issue scale representation above confirm hedging conceptually in both spatial movements associated with the hedge and the beneficial aspects of this hedge as indicated by the positive spatial directional movement for Estonia. The first Scenario represents a hypothetical pre-NATO/EU Estonia with an initial policy position to relocate the Bronze Soldier monument (the Estonian government's policy position moves from 10 to a forecasted 16 at the end of the first Scenario simulation). In essence, this first Scenario's forecasted movement away from the Estonian policy position is interpreted as aggregate stakeholder capabilities and lower salience levels stacked up less favorably to the pre-NATO/EU Estonian government's policy position on the Bronze Soldier issue.

The Estonian policy position is forecasted in the post-NATO Scenario 2 to a 14 value on the position scale, and remains forecasted in the post-EU Scenario 3 to the same value of 14 on the position scale. Hedging as a concept and the beneficial aspect of the NATO hedge for Estonia is evident in the spatial, or positional results of the modeled interactions. Subsequent to the challenge by the Russian Federation over the issue, the Estonian position as forecasted in the post-NATO Scenario improves by moving spatially closer (16 to 14 on the scale) to the initial Estonian position on the issue (10 on the scale or "RELOCATE"). The Estonian forecasted position does not move spatially from the post-NATO Scenario 2 to the post-EU Scenario 3 (unchanged value of 14 on the position scale from Scenario 2 to Scenario 3) indicating no positional benefit to Estonia of EU membership under the forecasting model framework, the model's assumptions, and the data estimations provided the model.

While a preliminary observation shows no spatial benefits to Estonia related to EU membership as modeled a concrete determination cannot be made of the ineffectiveness of EU membership as a security hedge without considering two factors. The first factor entails estimated data inaccuracy. The result of post-EU Scenario 3 must be viewed keeping in mind that capability, salience and resolve variable estimations for some stakeholders may not completely reflect their actual capability, salience or resolve over the issue. However, the modeled third Scenario seems to uncannily reflect the compromise-mindedness and consensus-building *modus operandi* of the EU. No spatial confirmation of hedging or hedge benefit is apparent in EU membership for Estonia regarding issue position as modeled in this third Scenario. However, a second aspect of consideration concerns another output indicator as confirmation of hedging. The hedging concept is substantiated, and the benefit of the EU hedge to Estonia is interpretatively identified in the Actor Relationship outputs of the three scenario modeled interactions over the issue. This will be further discussed in detail in the Actor Relationships section below.

The Issue Forecast representing the outcome for all stakeholders on the issue in the first Scenario was forecasted as a 31 value on the position scale, meaning a position between intermediation with the Russian minority domestically (30, "INTER" on the position scale) and multilateral negotiations via diplomatic channels (40, or "DIPCHAN" on the issue position scale). This is interpreted as the entire stakeholder universe holding a position (an average of rounds 4, 5, and 6 mean issue positions for all stakeholders weighted by salience and capability) somewhere between intermediation with the Russian minority over the issue domestically and using multilateral diplomacy as an appropriate disposition to the Bronze Soldier issue. This group position would have been relatively far from Estonia's policy position at the 10 value ("RELOCATE").

Hedging as a concept, hedge as its institutional manifestation, and the security benefits for Estonia are spatially substantiated by the Issue Forecast for the stakeholder universe in the modeled comparative three scenarios. The forecasted position for all stakeholders gradually moved closer to the Estonian position on the issue with each Scenario beginning with a pre-NATO/EU forecast of 31 on the position scale, moving to a value of 29 on the scale in the post-NATO Scenario, and continues moving towards the Estonian position with a 28 value in the post-EU Scenario result. The fact that the forecasted outcomes between 31 and 28 on the position scale were not close to the actual outcome (10 on the position scale) is not as relevant to this research as is the favorable spatial direction shown in the model outputs. Stakeholders as a group moved spatially toward the Estonian policy position.

This research and analysis was done with the Bronze Soldier outcome known beforehand. Though the actual outcome of the Bronze Soldier issue was exactly in accordance with the newly elected Estonian government decision to relocate the monument, and the model's forecast was slightly off (predicted Issue Forecasts between 31-28 values vs. actual outcome of 10), the model provides a consistent framework to verify the hedging argument through its spatial results. This difference between actual and forecasted position may be ascribed to capability, salience and resolve variable estimations for some or all stakeholders not completely reflecting their actual capability, salience or resolve over the issue. For instance, this research utilized a conservatively estimated salience increase (+5 points) for Scenarios 2 and 3, while actual NATO and EU salience to Estonia's government position on the issue might have been much higher. A more aggressive salience increase, say +10 points per Scenario, might have translated into an Issue Forecast even more spatially closer to the Estonian position, the logic being more NATO and EU capabilities brought to bear against the Russian Federation's challenge to the monument relocation. Such an overly conservative salience increase, among other possible reasons associated with data estimation, could account for the difference between the Issue Forecast and actual outcome which was relocation of the Bronze Soldier.

The NATO and EU hedges as modeled in this research increase Estonian security (benefit) when a challenger threatens security over some issue. The inverse correlation associated with the hedge is seen by the spatial outputs moving away from challenger Russia's position and aggregating for Estonia by NATO and/or EU members collectively. As in finance, the inversely correlated position compensates the existing position associated with a loss event occurring. The value of the hedge (NATO and EU multilateral salience/response) countered the

loss of security (threat) associated with an event occurring (challenge by Russia over the Bronze Soldier). The hedging argument of this research is characterized and confirmed when a member is being "pushed" or coerced by an external actor in a dispute over a security-related issue, and the hedge institution dynamically "pushes" back on behalf of its threatened fellow member. Similar to financial hedges, the NATO and EU hedges were inversely correlated to a security-related erosion of the Estonian position on the Bronze Soldier issue. This drop in Estonian security was invoked by a challenge from the Russian Federation and reversed by increased NATO and EU institutional interaction on the issue attributable to increased institutional salience of members' security-related issues. These same spatial events are interpreted as benefits for Estonian security because the institutional hedge arrangements compensated Estonia for a loss of security, in the form of Estonian spatial policy position erosion, and provided institutional support to the Estonian state. The modeled spatial relationships support the hedging argument of this research and confirm three beneficial aspects of hedges in the Estonian case.

9.2 Actor Relationships as Substantiation of Hedges and Hedge Benefits

In the spatial section above, preliminary observation shows no spatial benefits or positive direction related to the post-EU third scenario for Estonia. Estonia's position was forecasted to remain after the post-EU third Scenario at the same 14 value on the position scale as it was after the post-NATO second scenario. However, the effectiveness of EU membership as a security hedge for Estonia is apparent through the positive directional movement for the whole stakeholder universe as it moved slightly closer to the Estonian position from the post-NATO second Scenario (value 29 on the scale) to the post-EU third Scenario (value 28 on the scale). What does the model's Actor Relationship outputs show about the hedges?

The model provides a percentage breakdown of Actor Relationship types including "No Dispute", "Status Quo" "Compromise", Coerce" and "Clash". One of the requisite hedge defining and confirming criteria besides the spatial aspect is an observable increased amount of stakeholders whose pair-wise relations can be typified as clashing, coercing or compromising over the issue (increased NATO and EU action on the Estonian issue). Pair-wise stakeholder relations described as "No Dispute" or those which support the "Status Quo" indicate the non-involvement or passivity by stakeholders. The logic behind this hedge defining requirement is that increased exertive interactions between stakeholders over the issue is indicative of increased stakeholder involvement, increased stakeholder ability to use information about other actors' negotiation postures, to form opinions quicker and to reduce time in resolving an issue by using this knowledge learned through negotiations.

The following chart indicates the number of rounds it took to resolve the issue and the remaining columns depict the 5 "type" categorizations of Actor Relationships in percentage terms across the three Scenarios:

ACTOR RELATIONSHIPS	# OF ROUNDS	NO DISPUTE %	STATUS QUO %	COMPROMISE %	COERCE %	CLASH %
SCENARIO (1) - PRE-NATO / EU (BASE SALIENCE)	6	2,54 %	29,74 %	31,49 %	29,86 %	6,34 %
SCENARIO (2) - POST-NATO (+ 5 SALIENCE PER NATO MEMBER)	5	2,21 %	29,75 %	34,23 %	25,27 %	8,52 %
SCENARIO (3) - POST-EU (+ 5 SALIENCE PER EU MEMBER)	4	2,31 %	25,73 %	40,66 %	15,19 %	16,08 %

Stakeholder pairs characterized as compromising and clashing increased at the expense of relationships characterized as coercing or as supporters of the status quo. These model outputs support the hedging concept argument and also confirm the benefit of hedges for Estonia by the overall increase in the "Compromise", Coerce" and "Clash" components across the three scenarios. These three categories increased from 67.69% of the total in the pre-NATO/EU first Scenario, to 68.02% of the total in the post-NATO second Scenario, and tops out at 71.93% of the total in the post-EU third Scenario. More stakeholder activity and consequent resource expenditure on compromising, coercing or clashing is evident in the increase from 67.69% to almost 73% of the total with the greatest increases occurring between the post-NATO to the post-EU Scenarios. The "No Dispute" and "Status Quo" relationships remain relatively unchanged through the three different Scenarios.

The reshuffle amongst the "Compromise", Coerce" and "Clash" categories also describe the ancillary nature of stakeholder's relations in NATO and EU negotiated disputes. The chances of having a coercing relationship with other stakeholders declines with NATO and EU institutional linkages under the increased salience assumption and applies to members of these institutions as well as external non-member stakeholders affected by NATO and EU

expansion. Russia is less likely to be coerced and more likely to be in a compromising or clashing relationship when engaged in NATO and EU linked negotiations.

A doubling of "Clash" relationships from 8.52% in the post-NATO Scenario to over 16% in the post-EU Scenario does appear to be a troubling non-spatial attribute of both NATO and EU hedges. Clashes lead to systemic volatility such as World Wars and systemic volatility has been historically proven to be counterproductive to Estonian security if not its independence. However, a stable "Status Quo" cohort buttresses a "Compromise" contingent comprised of over 40% of stakeholder relationships. This compromising core of relationships may be interpreted as the silver lining in Estonia's EU hedge contributing to its long term regional security and regional systemic stability.

9.3 Reduced Time for Resolution of Dispute - Benefit of Hedges

The above chart shows a decreasing amount of Rounds of negotiations until the end of negotiations is reached. For purposes of this research, the risk of conflict expansion is assumed to be greater over time. The third hedge benefit identified through the three-scenario analysis is an assumed decrease in time to resolve an issue which the model defines in completed rounds of stakeholder interactions over the issue in dispute. Once all stakeholders have iteratively interacted a round is deemed complete. Rounds continue to accrue until the heuristic utility-defined end game rule is invoked. The model does not measure rounds in hours and days because it would be impossible ex post facto to know how long rounds of negotiations between stakeholders can actually last. However, a decreasing amount of rounds of negotiations over the issue is considered beneficial to Estonia as well as the collective. The logic behind this assertion is that time provides the opportunity for other factors to negatively affect an unresolved dispute. Unresolved local disputes have become preludes to some of the largest violent conflicts between states or coalitions of states during the past two centuries.

The actual Bronze Soldier dispute lasted from 26 April 2007 to 9 May 2007 taking 14 days to resolve the issue. This means that the 4 rounds of modeled interactions taken to resolve the issue in the post NATO/EU third Scenario can represent an assumed total of 336 total hours or 14 complete days. By using division each round can be measured to represent 84 hours or 3 and ½ days. Using the same reasoning and backward induction, the post-NATO second scenario prediction of 5 rounds indicates that the time to resolve the dispute would have been 420 total hours or 17 and ½ days. The same metrics applied to the pre-NATO and EU first Scenario with a predicted 6 rounds of negotiations would have taken 504 total hours or 21 days. The benefit for Estonia of NATO and EU hedges in this time metric analysis is the elimination of an entire week of security risk associated with time.

9.4 Risks Entailed with Hedges

The research paper has confirmed the existence of hedging in two ways: (1) spatially measured in position, and (2) relationally defined in stakeholder relationships. The research has also identified three benefits for Estonia associated with NATO and EU hedges including a (1) spatial benefit, a (2) stakeholder-relationally defined benefit, and a (3)reduced time risk-reducing benefit. However are there risks associated with the NATO and EU hedges?

In finance, hedging is akin to taking a risk (NATO and EU institutional linkage) to counter a risk (regional risks associated with neutrality, small size, small military etc.). The difference between these two risks is aggregate benefits less costs. Risks to Estonia associated with NATO and EU hedges include increasing military expenditures or "burden share", increased obligations in existing military theaters of operations such as Iraq, Afghanistan, and Libya, and vaguely defined institutional strategic concepts resulting in highly malleable or "open-ended" mandates which possibly might lead to undesirable expansion of military theaters of operation (Iran?).

Large risks of hedges might include increasing amounts of sovereignty in the form of foreign, security and economic policy decision-making powers sent to the executive "centers" of these supranational institutions where local politics can be subordinated to larger trends and structures. Estonia experienced this local subordination effect recently when the EU led by Germany and France partnered with the Russian Federation to construct the Nordstream energy pipeline overriding the Estonian government policy position against Nordstream. For Estonia, these relative risks are apparently part of the costs incurred by hedging security with the EU.

Larger risks of hedges include potential obligations to enjoin larger conflicts between bigger powers in far away wars, forced divestiture from an institution for economic reasons, outright alliance failure, dissolution of an institution, or isolation of a large power which reacts by becoming belligerent. All of these risks associated with hedging and hedges are possible and highly considered by small and large states in dynamic institutional settings. These possibilities provide a bounty of promising empirical research topics and an opportunity to expand theoretical research in security studies and International Relations.

9.5 Recap

The concept of hedging has been substantiated in this research and the research concludes that joining NATO and the EU provided spatially confirmed security enhancement for Estonia as was intended. While joining both organizations entails costs it is apparent in the context of the dispute over the Bronze Soldier that in April 2007 Estonia's hedge provided beneficial support for the Estonian policy position when it was challenged by Russia. The results of the hedge do support the view that Russia isolates itself when it challenges a NATO/EU member on a domestic policy issue by attracting aggregate institutional pressure upon itself. This isolation is issue dependent as evidenced by the cooperative nature of Nordstream negotiations between Russia and the EU to the dismay of Estonian policymakers. Institutionally defined and enforceable boundaries do enhance current Estonian security as was the case in the Bronze Soldier dispute. As modeled in this research, NATO and EU institutional expansion to Estonia has reduced the post-Soviet Baltic "gray" areas and that this physical and spatial demarcation of governance contributes to current European regional stability.

This research, as defined, demonstrated that for Estonia institutional linkages provided a conceptualized and spatially measured beneficial hedge effect in a political dispute with a much stronger and, as evidenced, a potentially coercive Russia. By the same token, the research elevates to the surface questions about the apparent asymmetric nature of small states and larger

state dominated alliances and institutions to which these smaller states belong. Institutionally-linked security benefits such as policy "shaping" abilities are apparent for small states but also open the possibility of risks to the institution of negative small state behavior conveyed back along the same linkages. In this context, institutions might be viewed dichotomously as coordination devices between states which belong to same institutions, as well as negotiation devices for interactions with external states. In this age of democracy as a political "brand", and the competition to influence political and social choice, inclusion based on universally recognized political preferences, as opposed to exclusion, seems to be thematic in contemporary Transatlantic and European international relations. Theory leads the way by revealing the dynamics of these political relations and providing considerations for future research.

Astute academic research provides a basis for understanding international relations and institutional dynamics further assisting the management of individual and collective security, maintenance of stability when it is preferred by those concerned, and when change is inevitable, to move toward a virtuous goal of engineering peaceful political outcomes.

Model Calculations Appendix

Forecasting Model calculations (Bueno de Mesquita 1984, 1992, 1997 and forthcoming):

(1) The following forecasting model calculation represents the probability of Stakeholder A succeeding in one iteration of a Stakeholder A and Stakeholder B interaction;

$$P_B^A = \frac{\sum_{\{U(KA)|U(KA)>U(KB)\}} (C_K)(S_K)(U_{KA} - U_{KB})}{\sum_{K=1}^{n} (C_K)(S_K)\,|\,(U_{KA} - U_{KB})\,|}$$

where **K** = 1 to n stakeholders, **C** = capability, and **S**=salience. **U**=utility where the first subscripted stakeholder utility is considered and the secondary subscripted stakeholder's utility on the same issue is considered relative to the first. The equation includes third party stakeholder capability and salience weightings on the utility outcome regarding the negotiation between stakeholders A and B.

Stakeholder A's utility for the status quo represented as;

$$U_{SQ}^A = \quad (1-(X1_A - X1_{WeightedMean})^2)S_A$$

Stakeholder A's utility for Stakeholder B's position on the issue =

$$U_B^A = \quad [(1-(X1_A - X1_B)^2)^\theta][(1-(X2_A - X2_B)^2)^\beta]$$

where X1k = Stakeholder K's endogenously derived policy preference on the issue (X being a proposal formed endogenously subsequent to an iterative interaction with 1 to n stakeholders. The proposal may or may not be an actual or ideal policy position but just an adjustment reaction to what is gleaned from an iteration),

and X2k = Stakeholder K's resolution posture between flexibility and stubbornness over an issue.

(2) The 8 payoff and cost treated forecasting model calculations follow:

First Possible Result: $1-U_{AB}^A$ is Stakeholder A's expected payoff for Stakeholder B's immediate acceptance of A's proposal.

Second Possible Result : $N_B^A - \alpha_B^A - \varphi_B^A$ is Stakeholder A's expected payoff if A attempts to coerce and B resists, with N being the Sixth Possible Result.

Third Possible Result : $1-U_{AB}^A - \varphi_B^A$ is Stakeholder A's expected payoff if A coerces B and B capitulates.

Fourth Possible Result: $N_B^A - \tau_B^A - \varphi_B^A$ is Stakeholder's A's expected payoff if B tries to coerce A and A resists with N_B^A being the Sixth Possible Result.

Fifth Possible Result : $1 - U_{BA}^A - \gamma_B^A$ is Stakeholder A's expected payoff if B coerces A and A capitulates.

Sixth Possible Result : $(P_B^A)(1-U_{AB}^A) + (1-P_B^A)(1-U_{BA}^A) = N_B^A$ is Stakeholder A's expected payoff for compromise between A and B.

Seventh Possible Result: U_{SQ}^A is Stakeholder A's expected payoff of a preserved status quo with Stakeholder B.

Eighth Possible Result: $1-U_{BA}^A$ is Stakeholder A's expected payoff if it accepts Stakeholder B's proposal.

(3) Stakeholder A's utility reflects initial proposal and costs associated with that proposal and how such proposal is proposed as in the following;

$D_B^* N_B^A + (1-D_B^*)(\arg\max[(1-U_{BA}^A - \gamma_B^A), (N_B^A - \tau_B^A)]$ represents Stakeholder A's expected utility from offering a compromise proposal to Stakeholder B.

$R_B^*(N_B^A - \alpha_B^A - \varphi_B^A) + (1-R_B^*)(1-U_{AB}^A - \varphi_B^A)$ represents Stakeholder A's expected utility in an attempt to coerce Stakeholder B.

Example Utility Calculations of original Expected Utility Model

Stakeholder A

EU|A Challenges = $(1-S_B)U_{Wins} + S_B(P_A)U_{Wins} + S_B(1-P_A)U_{Loses}$

EU|A Not Challenge = Q(UStatusQuo) + (1-Q)[(T)(UImproves) + (1-T)(UWorse)]

$E^A(U_{AB})$ = EU|A Challenges – EU|A Not Challenge

Stakeholder B

EU|B Challenges = $(1-S_A)U_{Wins} + S_A(P_B)U_{Wins} + S_A(1-P_B)U_{Loses}$

EU|B Not Challenge = Q(UStatusQuo) + (1-Q)[(T)(UImproves) + (1-T)(UWorse)]

$E^B(U_{BA})$ = EU|B Challenges – EU|B Not Challenge

Variables: S=resolve-flexibility, P=subscripted Stakeholder's probability, U=utility of subscripted condition.

The model calculates the expected impact of each Stakeholder's two possible moves upon the other Stakeholder for a total of 4 equations, as follows: (1) $E^A(U_{AB})$; (2) $E^A(U_{BA})$ (3) $E^B(U_{AB})$ (4) $E^B(U_{BA})$.

Data Appendix

1. Table – Initial Data Estimates for Scenario 1 Pre-NATO/EU .

ACRONYM X	1ST SCENARIO POWER-CLOUT CAPABILITY 0-100	ESTONIA PRE NATO/EU POSITION 0-100	SALIENCE 0-100	RESOLVE-FLEXIBLITY 0-100
USAPRES	160	10	10	50
USASECST	150	10	10	50
USACONG	140	10	5	50
USAMIL	100	10	10	50
EUEC	160	10	90	60
EUEP	130	10	90	60
NATOSG	5	10	80	30
ESTPM	20	10	95	5
ESTFM	20	10	95	5
ESTRIIG	20	10	95	5
ESTRUSMIN	10	90	95	5
LATPM	20	10	95	5
LATFM	20	10	95	5
LITPM	20	10	95	5
LITFM	20	10	95	5
FINPM	55	10	90	10
FINPRES	55	10	90	10
FINFM	20	10	90	10
FINEDUSK	40	10	90	10
FINMIL	5	10	85	5
GERPM	70	10	50	50
GERPRES	70	10	50	50
GERFM	40	10	50	50
FRANPM	70	10	50	50
FRANPRES	70	10	50	50
FRANFM	40	10	90	50
RUSPM	120	75	80	5
RUSPRES	110	80	80	5
RUSFM	120	85	80	5
RUSDUMA	75	90	80	5
RUSMIL	50	95	65	5

NATO/EU MEMBER
NATO MEMBER
EU MEMBER

UKPM	50	10	50	50
UKFM	50	10	50	50
SWEPM	25	20	60	60
SWEFM	25	20	60	60
NORPM	20	10	50	50
NORFM	20	10	50	50
DENPM	50	10	50	60
DENFM	50	10	50	60
POLFM	10	10	50	60
BELPM	5	55	30	20
BELFM	5	55	30	20
UKRPM	5	40	25	20
UKRFM	5	45	25	20
NETHPM	55	10	30	50
BELGPM	50	10	30	50
GREEPM	40	10	10	50
ICEPM	5	10	10	50
ITAPM	50	10	10	50
PORPM	40	10	5	50
SPAPM	50	10	5	50
AUSFM	5	10	5	50
IREFM	5	10	5	50
CYPFM	5	10	5	50
MALFM	5	10	5	50
CZEFM	10	10	10	50
HUNFM	10	10	10	50
LUXFM	5	10	5	50
BULFM	5	10	15	50
ROMFM	5	10	15	50
SLOKFM	5	10	10	50
SLOVNFM	5	10	10	50
ALBFM	5	10	5	50
CROFM	5	10	5	15
TURFM	25	10	10	50

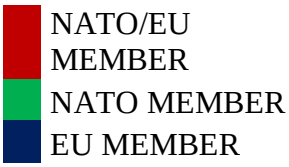
NATO/EU MEMBER
NATO MEMBER
EU MEMBER

2. Table – Initial Data Estimates for Scenario 2 Post-NATO (+5 Salience Degrees For NATO Members and + 5 For Russia, Belarus and Ukraine - All Other Initial Variables Unchanged).

ACRONYM	2ND SCENARIO ESTONIA POST-NATO CAPABILITY-INFLUENCE 0-100	POSITION 0-100	SALIENCE 0-100	RESOLVE-FLEXIBLITY 0-100
X				
USAPRES	160	10	15	50
USASECST	150	10	15	50
USACONG	140	10	10	50
USAMIL	100	10	15	50
EUEC	160	10	90	60
EUEP	130	10	90	60
NATOSG	5	10	85	30
ESTPM	20	10	95	5
ESTFM	20	10	95	5
ESTRIIG	20	10	95	5
ESTRUSMIN	10	90	95	5
LATPM	20	10	95	5
LATFM	20	10	95	5
LITPM	20	10	95	5
LITFM	20	10	95	5
FINPM	55	10	90	10
FINPRES	55	10	90	10
FINFM	20	10	90	10
FINEDUSK	40	10	90	10
FINMIL	5	10	85	5
GERPM	70	10	55	50
GERPRES	70	10	55	50
GERFM	40	10	55	50
FRANPM	70	10	55	50
FRANPRES	70	10	55	50
FRANFM	40	10	55	50
RUSPM	120	75	85	5
RUSPRES	110	80	85	5
RUSFM	120	85	85	5
RUSDUMA	75	90	85	5
RUSMIL	50	95	70	5
UKPM	50	10	55	50
UKFM	50	10	55	50

NATO/EU MEMBER
NATO MEMBER
EU MEMBER

SWEPM	25	20	60	60
SWEFM	25	20	60	60
NORPM	20	10	50	50
NORFM	20	10	50	50
DENPM	50	10	55	60
DENFM	50	10	55	60
POLFM	10	10	55	60
BELPM	5	55	35	20
BELFM	5	55	35	20
UKRPM	5	40	30	20
UKRFM	5	45	30	20
NETHPM	55	10	35	50
BELGPM	50	10	35	50
GREEPM	40	10	15	50
ICEPM	5	10	15	50
ITAPM	50	10	15	50
PORPM	40	10	10	50
SPAPM	50	10	10	50
AUSFM	5	10	5	50
IREFM	5	10	5	50
CYPFM	5	10	5	50
MALFM	5	10	5	50
CZEFM	10	10	15	50
HUNFM	10	10	15	50
LUXFM	5	10	10	50
BULFM	5	10	20	50
ROMFM	5	10	20	50
SLOKFM	5	10	15	50
SLOVNFM	5	10	15	50
ALBFM	5	10	10	50
CROFM	5	10	10	15
TURFM	25	10	15	50

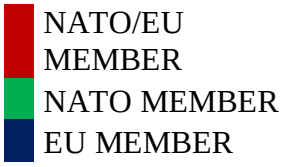


3. Table – Initial Data Estimates for Scenario 3 Post-EU (+5 Salience For EU Members and + 5 For Russia, Belarus and Ukraine -All Other Initial Variables Unchanged).

3RD SCENARIO	ESTONIA POST-EU			
		0-100	0-100	0-100
ACRONYM	CAPABILITY-INFLUENCE	POSITION	SALIENCE	FLEXIBLITY
USAPRES	160	10	15	50
USASECST	150	10	15	50
USACONG	140	10	10	50
USAMIL	100	10	15	50
EUEC	160	10	95	60
EUEP	130	10	95	60
NATOSG	5	10	85	30
ESTPM	20	10	95	5
ESTFM	20	10	95	5
ESTRIIG	20	10	95	5
ESTRUSMIN	10	90	95	5
LATPM	20	10	95	5
LATFM	20	10	95	5
LITPM	20	10	95	5
LITFM	20	10	95	5
FINPM	55	10	95	10
FINPRES	55	10	95	10
FINFM	20	10	95	10
FINEDUSK	40	10	95	10
FINMIL	5	10	90	5
GERPM	70	10	60	50
GERPRES	70	10	60	50
GERFM	40	10	60	50
FRANPM	70	10	60	50
FRANPRES	70	10	60	50
FRANFM	40	10	60	50
RUSPM	120	75	90	5
RUSPRES	110	80	90	5
RUSFM	120	85	90	5
RUSDUMA	75	90	90	5
RUSMIL	50	95	75	5
UKPM	50	10	60	50
UKFM	50	10	60	50
SWEPM	25	20	60	60
SWEFM	25	20	60	60

NATO/EU MEMBER
NATO MEMBER
EU MEMBER

NORPM	20	10	55	50
NORFM	20	10	55	50
DENPM	50	10	60	60
DENFM	50	10	60	60
POLFM	10	10	60	60
BELPM	5	55	40	20
BELFM	5	55	40	20
UKRPM	5	40	35	20
UKRFM	5	45	35	20
NETHPM	55	10	40	50
BELGPM	50	10	40	50
GREEPM	40	10	20	50
ICEPM	5	10	15	50
ITAPM	50	10	20	50
PORPM	40	10	15	50
SPAPM	50	10	15	50
AUSFM	5	10	10	50
IREFM	5	10	10	50
CYPFM	5	10	10	50
MALFM	5	10	10	50
CZEFM	10	10	20	50
HUNFM	10	10	20	50
LUXFM	5	10	15	50
BULFM	5	10	25	50
ROMFM	5	10	25	50
SLOKFM	5	10	20	50
SLOVNFM	5	10	20	50
ALBFM	5	10	10	50
CROFM	5	10	10	15
TURFM	25	10	15	50



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