

The Logic of Restraint

China's Nuclear Policies in an Era of Reform

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Fall 2010

Acknowledgments

Numerous people have contributed to this thesis.

First of all, thanks to my two supervisors, who have believed in the project from the beginning. Professor Arild Underdal at Oslo University has provided me with steady guidance, and has given me with excellent feedback on all the chapters in this thesis. Dr. Bates Gill at the Stockholm International Peace Research Institute (SIPRI) introduced me to the arms control community in China, and facilitated the fieldwork of this study. His thorough comments on especially the empirical parts of this thesis were invaluable, and his advice has greatly improved my understanding of foreign policy-making in China.

Thank you also to my colleagues at the Norwegian Institute for Defense Studies (IFS) for accommodating me, and providing me with a generous scholarship and an inspiring working environment. A special thanks goes to Sébastien Miraglia, Øystein Tunsjø, and Målfrid Braut-Hegghammer.

I would also like to thank Svein Mykkeltveit at NORSAR, who taught me a lot about the Comprehensive Test Ban Treaty.

Also, thanks to the Chinese scholars, policy analysts and arms control experts who were willing to meet with me during my fieldwork in China. Without their willingness to help this hapless *laowai* and provide him with information and their perspectives on the making of Chinese nuclear policy, this project could never have been realized.

Finally, thanks to Hedda for encouragement, patience, and advice.

List of Acronyms:

ABM	Anti-Ballistic Missile Treaty
BMD	Ballistic Missile Defense
CAEP	Chinese Academy of Engineering Physics
CCP	Chinese Communist Party
CD	Conference on Disarmament
CIA	Central Intelligence Agency
CMC	Central Military Commission
CTB	Comprehensive Test Ban
CTBT	Comprehensive Test Ban Treaty
CTBTO	Comprehensive Test Ban Treaty Organization
CWC	Chemical Weapons Convention
DIA	Defense Intelligence Agency
FMCT	Fissile Material Cut-off Treaty
IAEA	International Atomic Energy Agency
ICBM	Intercontinental Ballistic Missile
IDC	International Data Center
IMS	International Monitoring System
LEP	Lightning Electromagnetic Pulse
MFA	Ministry of Foreign Affairs (China)
MIRV	Multiple Independently targetable Re-entry Vehicles
MRV	Multiple Re-entry Vehicles
NAS	National Academy of Sciences (US)
NCA	Nuclear Cooperation Agreement
NFU	No-first-use (of nuclear weapons)
NNWS	Non-nuclear weapon State

NPT	Nonproliferation Treaty
NSA	Negative Security Assurances
NTM	National Technical Means
NWS	Nuclear weapon State
OSI	On-site Inspections
PAROS	Preventing an arms race in outer space
PLA	People's Liberation Army
PNE	Peaceful Nuclear Explosion
PRC	People's Republic of China
PTBT	Partial Test Ban Treaty
SLBM	Submarine Launched Ballistic Missile
SSBN submarine)	Submersible Ship Ballistic Nuclear (nuclear-powered ballistic missile submarine)
SSMP	Stockpile Stewardship and Management Program
TTBT	Threshold Test Ban Treaty

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1 China's Changing Nuclear Policies

Since the end of the Cultural Revolution and the launch of the "reform and opening", the foreign policy of the People's Republic of China (PRC) has undergone dramatic changes. From being a relatively isolated country bent on self-sufficiency, China has emerged as an increasingly confident player on the international arena, taking active part in processes it previously shunned. Its confrontational attitude and revolutionary preferences have also been dramatically altered: Where it once cried for overturning the Western-led "imperialist" system, China is now preaching the virtues of harmony and peaceful coexistence, guaranteeing neighbors and others alike that its "peaceful rise" will be radically different from that of other great powers in the 20th century. Though the potential for great power conflict and China's future role on the world stage remain topics of intense debate, for the time being, China appears like a much more constructive and cooperative international player than it did three decades ago.¹

Shifts in Beijing's foreign policy have also been readily apparent in the nuclear domain. For instance, in the field of nonproliferation, changes are radical: From being adamantly opposed to and strongly suspicious about the motives for nuclear non-proliferation initiatives, China has become an active participant in many such efforts. In 1984, China joined the International Atomic agency (IAEA), and agreed to put all its export under international safeguards. In 1992, it joined the Nonproliferation Treaty (NPT), a treaty Beijing had formerly decried as a "conspiracy conducted by the USSR and the US to maintain their nuclear monopoly." In order to ensure compliance with its non-proliferation pledges, Beijing has also greatly strengthened its previously very weak export control regime (Medeiros 2005). Though some non-proliferation issues, especially related to missile proliferation, remain disputed, and China's compliance with the NPT has been questioned in relation with nuclear transfers to for instance Algeria, Iran, and Pakistan, there is still little doubt that Chinese policy on nonproliferation has changed substantially (Medeiros 2007).

China's attitude towards arms control has also been in the flux. In 1964, the

1 For an excellent overview of China's changing approach to foreign policy, see (Medeiros & Fravel 2003).

same year as it made its first nuclear test, the Chinese Communist Party (CCP) denounced the Partial Test-Ban Treaty (PTBT) as "a big fraud" designed to ensure the nuclear monopoly of US, the Soviet Union and the UK, and denying developing countries the right to develop such weapons. Since the beginning of the 1980s, Chinese leaders have gradually moderated their stance, and since the early 1990s, China has acceded to several important arms control conventions and stated its support for others (Johnston 1996a). While most of these treaties and regimes have limited impact on Chinese security, it is important to note that there are also some that actually affect Beijing's room for maneuver. Most notably, by signing (but later not ratifying) the Comprehensive Test Ban Treaty (CTBT), China for the first time principally agreed to an effort that might potentially substantially restrict the modernization of its nuclear forces (Johnston 1996a; Johnston 2003).

China has kept modernizing its nuclear forces throughout the period, but it might be argued that it has still shown a relatively strong restraint. Even as its economy has grown at tremendous speed, and its financial and technological capability to expand its small and relatively vulnerable nuclear arsenal has improved, a major quantitative build-up predicted by many Western analysts has so far failed to materialize (Kristensen et al. 2006, pp.3-4; Jeffrey G Lewis 2007). In fact, during the 1980s, there was a strong de-emphasis of nuclear weapons, with the total number of deployed weapons decreasing significantly, and the budgets of the strategic programs seeing major cuts. Even though there has been growing concern about the modernization of its arsenal among Western analysts and policy-makers especially since the early 1990s, China has still kept its arsenal small.

In sum, China's nuclear preferences seems to have changed markedly along several different dimensions. Adopting a comprehensive approach, and trying to explore whether or not there is a broad rationale driving policy both in the arms control, nonproliferation, and nuclear force structure area, this study sets out to analyze the reasons behind these developments. It therefore asks two main research question:

1. What has characterized China's nuclear policies since the 1980s?

2. What is the rationale behind the changes in its nuclear priorities?

The study seeks to analyze these questions by building on a theoretical framework presented by Etel Solingen in the book *Nuclear Logics* (2007). The basic suggestion of this theory is that economic orientations and domestic political configurations matter when explaining nuclear policies. Solingen argues that “internationalizing” regimes that derive their legitimacy from economic growth, and that seek integration in the global economy, are much less likely to seek to develop nuclear weapons than inward-oriented ones rejecting such integration. Even though the theory seeks to explain the choices of potential nuclear aspirants, and not full-blown nuclear powers like China, this study hypothesize that it might be of relevance also when applied to the Chinese case. The basic logic that it seeks to explain is the same as what this study seeks to explore – namely what makes a state to adopt a more *restrained* nuclear policy. In addition to exploring this hypothesis, this study will also evaluate the explanatory power of a main rival theory, namely structural realism. The main hypothesis could be phrased like this:

The regime's adoption of an internationalizing model of domestic political survival, and the wish to integrate in the global economy, is the main driving force behind China's restrained nuclear policy.

This chapter proceeds as follows: It first addresses the question of why studying China's nuclear policies is important, and briefly examines the state of the current literature. Second, the methodology of the thesis is described, including the reasons for selecting the three main cases. Third, it outlines the main findings of the study. Finally, it provides a road map for the further thesis.

1.1 The importance of understanding China's nuclear policy

There are at least three broad reasons why a study of China's nuclear policy is important. First, the reorientation of China's nuclear policy arguably represent one of its most significant foreign policy shifts after the initiation of the reforms. This is both

because of the scope and extent of these changes, but also because of the sensitivity of the issue, and its significant security implications. Beijing's policies in this area is therefore a strong indication of China's diplomatic outlook more generally, and its approach to international cooperation. Studying this issue will provide important insight into to which degree, and under what circumstances, Beijing is willing to accept rule-bound behavior and even collective security arrangements, and perhaps ultimately also into the question of what kind of great power China is likely to be in future. It could therefore contribute to the debate on whether to "contain" or "engage" a rising China, which has been going on in US academic and policy circles for the last two decades.²

Second, understanding the driving forces behind China's nuclear policies in the past might provide important clues to how these policies more specifically will evolve in the future. As China is a legally recognized nuclear weapons state (NWS), a permanent member of the Security Council, and a great power which international clout has been rapidly increasing in the last decades, its actions and policies will key a key factor forming the future global nuclear order. If further progress on the international arms control agenda is to be realized, and further disarmament and perhaps eventually the goal of reaching a "nuclear zero" is to be achievable, engaging China is of vital importance. Also, in the field of nonproliferation, Beijing's plays a key role in the future framing of the international regime generally, and also in the handling of some of some major nonproliferation concerns, such as North Korea's nuclear program, as well as the international efforts to handle Iran's nuclear program. In addition, as past experience indicate, China can potentially also severely inhibit international nonproliferation efforts by spreading nuclear weapons or related technology to other countries.³

Finally, studying Chinese nuclear policies is also interesting from a theoretical

2 For some interesting perspectives on the debate on China's status-quo orientation and containment versus engagement, see, for instance, (Shambaugh 1996; Ross 1997; Chin & Thakur 2010; Mearsheimer 2006; Johnston 2003). Henry Kissinger, the architect behind Nixon's de facto engagement strategy towards China (Nixon did not use the term engagement himself), has also interestingly participated in this debate, arguing that "containment won't work". See (Kissinger 2005).

3 China's spread of nuclear technology to other countries is described in more detail in chapter 3.

perspective. As indicated above, the theory that is put to test in this study aims at explaining nuclear restraint for potential nuclear aspirants. Applying this framework to a case outside its scope conditions – a full-blown nuclear weapons state – might be an important indication of whether or not the theory is relevant also for explaining the nuclear restraint also of such states. If it is, this insight might be valuable, as it can provide policy-relevant information on how to keep nuclear weapons states from developing more aggressive policies, and nudging them in a more cooperative direction. Even though a single case study will not be enough to firmly this, it might be an important first step the further development of this theory.

1.2 The state of the current research

Compared to the burgeoning literature on US and Russian nuclear policy, less attention has traditionally been given to China's strategic programs and its arms control and nonproliferation policies. After the end of the Cold War, however, there has been a increasing interest both in the academic world and in among policy-makers for these issues, resulting in a growing body of literature. The seminal work of John Lewis and his colleagues (1991; 1992; 1994; 2006) has provided invaluable insight into the history of China's strategic programs, and has been frequently quoted and discussed by other researchers analyzing China's force structure, nuclear doctrine and strategy.⁴ In addition, important work has been published about the change in China's arms control policies,⁵ as well as about the evolution of its nonproliferation policies since the the 1980s.⁶

Despite the growing interest for and increasing amount of publications available about China's nuclear policies, there are still two main weaknesses associated with the literature.

4 Important contributions in this field includes (Chase & Medeiros 2005; Gill & Mulvenon 2002; Goldstein 2000; Johnston 1995; Johnston 1996b; Kristensen et al. 2006; Jeffrey G Lewis 2007; Medeiros 2007a; Stokes 1999).

5 See, for instance (Frieman 2004; Garrett & B. S. Glaser 1995; Gill 2001; Gill 2007; Gill & Medeiros 2000; Johnston 1996a).

6 Here, contributions include (Frieman 2004; Medeiros 2007b; Tan 1989; Davis 1995).

First, some of its is lacking in theoretical rigor, and does not provide a distinct analytical framework for analyzing policy changes. It often does not relate its findings to broader questions in the field of International Relations, and thus offers little insight beyond the Chinese case. Also, as Medeiros (2007b, p.8) points out, much of the literature on nonproliferation and arms control focus on very specific events at specific times, and does not analyze and compare policies in different periods. As the processes driving policy in China might be of relevance also when studying the nuclear policies of other countries, trying to evaluate which broader lessons the Chinese case might teach us is potentially very important.⁷

Second, the studies generally analyze the different aspects of China's nuclear policy as isolated and separate questions, and often do not take into consideration whether or not there might be important links between its force development, arms control, and nonproliferation policies. Especially, the question of force development is often seen as isolated from the two other issues, despite the potentially significant relationship between the state of China's nuclear arsenal and the PRC leadership's plans for further development, on the one hand, and arms control policies on the other.⁸ For this reason, most studies fail to address the question of whether or not there is any common rationale driving policy in these areas.

This study sets out to address both of these problems. By taking a comprehensive approach, it explores whether there has been any broad rationale behind these changes, or if Beijing's shifting approach should rather be seen as the result of different factors influencing policies in each case. Furthermore, it seeks to develop a framework to understand China's changing nuclear logics, and to relate these questions to international relations theory more broadly to see what the Chinese case might reveal about the rationale driving the policies of NWS. In other words, unlike many other studies of Chinese nuclear policies, this thesis has both an area-specific and a more general aim, as it seeks to address both questions related to

7 Avery Goldstein's (2000) study is an important exception here.

8 Jeffrey Lewis' (2007) study is a notable exception here. However, while his study on China's nuclear posture is excellent, Lewis' explanation of recent Chinese arms control behavior (especially the decision to sign the CTBT), which he links to its nuclear strategy, is not equally convincing (this will be pointed out in detail in chapter 5).

China in particular, but also questions of broader theoretical interest.

1.3 Methodology and research design

Based on the theory developed by Etel Solingen, this study seeks to test a hypothesis that the changes in China's nuclear orientations from the 1980s were brought about by a change in the Chinese regime's domestic orientations and economic policies, and especially its attitude towards integration in the global economy. It begins by laying out the conceptual framework, as well as pointing to a possible alternative explanation from a rival theory, namely neorealism. The framework is tested through three case studies, namely the development of its force structure, the decision to join the NPT, and the decision to sign the CTBT. These cases represent three different aspects of China's overall nuclear policy, namely its policy for nuclear modernization and deployment, its arms control policy, and its nonproliferation policy. In this way, the study seeks to test the framework comprehensively, and to see whether or not it might be relevant for explaining China's nuclear choices in all these areas. Such a study design facilitates cross-case comparison, and in addition, as especially the cases on force development and the NPT will focus on China's evolving policies over time, the study will also allow within-case comparison. Allowing both across-case and within-case comparison makes it possible to control certain variables, which is important when assessing the relative importance of different factors in determining Chinese nuclear diplomacy.

However, there are some methodological challenges related to the research design of this study. The following section will outline some of these challenges and the choices made in the work with this thesis, and how they might have affected the final outcome.

1.3.1 Methods: The process-tracing approach

In order to properly test the hypothesis of this study, it is important to establish a credible linkage between cause and effect. Pointing to correlation is obviously not enough – it is already from the outset relatively clear that the changes in nuclear policy

happened during the same period as the started integrating into the global economy – but it is not readily apparent whether or not this relationship is causal or mainly spurious. For this reason, the study must delineate and try to establish a credible causal mechanism between the predictory and the predicted variable.

In order to do achieve this aim, the thesis adopt a process-tracing method. The essence of this method can be described like this:

The application of process tracing usually means to trace the operation of the causal mechanism(s) at work in a given situation. One carefully maps the process, exploring the extent to which it coincides with prior, theoretically derived expectations about the workings of the mechanism. The data for process tracing is overwhelmingly qualitative in nature, and includes historical memoirs, interviews, press accounts and documents (Checkel 2006, p.6).

A key point of this approach is to link the theories closer to the “real world”, as many International Relations theories have been criticized for being underdetermined, overtly structural, and based on unrealistic assumptions (Checkel 2006, p.3). To solve the problem of this “aloofness” of the theories, it points to the importance of studying process and causal mechanisms, and not just correlation, and forces researchers to establish credible links between causes and effects (Checkel 2006; George & Bennett 2005, p.209). It is potentially a valuable method for testing and developing theories: "not only because it generates numerous observations within a case, but because these observations must be linked in particular ways to constitute an explanation of the case" (George & Bennett 2005, p.207). As this study aims at such testing and development of a theory, process-tracing is deemed a suitable method.

Process-tracing case studies also hold other potential advantages. Jeffrey Checkel points to how they can minimize the "first mover advantage", that is, explaining a case with one's favorite theory, and failing to allow for honest testing of alternative, competing theories. It can also promote bridge building between different theories, by connecting different theoretical tool kits, acknowledging that they might contribute with explanatory power in different ways. (Checkel 2006, pp.15-17) This is because the method forces the researcher to see whether the process (or causal mechanism) found to be at work in the data proves to be in accordance with the theoretically expected patterns. If they are not, or provide only partial insight, it might

be due to the relevance of other theoretical paradigms, which might either be better suited, or at least prove to have some relevance in explaining the case in question.

There are, however, also several disadvantages to the process tracing method. The most important one in this context, is that requires lots of data and time to obtain them (Checkel 2006, p.18; George & Bennett 2005, p.223). In addition to being time-consuming, data might also be difficult to come across. These data requirements is related to what George and Bennett identify as one of the two key constraints on process-tracing, namely that "The inferential and explanatory value of a causal path is weakened, though not negated, if the evidence on whether a certain step in the putative causal path conformed to expectations is simply unobtainable" (2005, p.222). Lack of data might also contribute to the second key constraint, namely that there might be several causal mechanisms that conform with the data, and therefore impossible to reach solid conclusions (George & Bennett 2005, p.222). The problem of data availability is admittedly significant in this context, and will be addressed in the section on sources for the thesis.

Finally, there are some potential limitations to the case study approach more generally that should be addressed. Most importantly, despite Checkel's notion that process-tracing allows for honest testing of alternative theories, case-studies are often regarded as ill-suited for proper testing and falsification of theories, and generalization of findings, because of cases potentially lacking representativeness of a larger population.⁹ In this case, where the aim is to test whether the Solingen's theory might be relevant also for a NWS, in order to develop the theory further, the larger population would obviously be all NWS. Thus, even if the Chinese case corresponds well with the theory, this should not be seen as more than an indication of its relevance. On the other hand, the value of such an early indication should not be underestimated, and might prove to be a basis for further research.

⁹ There is differences of opinion of how serious this problem is, and to what degree it is possible to generalize based on case-studies, and also whether or not they are suitable for theory testing. For a strict interpretation, see (Lijphart 1971, p.691). For a more flexible view, see (Gerring 2007).

1.4 Sources: Potential issues of validity and reliability

This thesis build on a wide range of primary and secondary sources, including 15 interviews with 16 different figures within the Chinese arms control community,¹⁰ Chinese source materials, US declassified intelligence information, as well as a range of secondary academic sources. This section addresses how they were collected, and potential problems of validity and reliability.

The interviews were conducted during a two-month field trip to China from late April to late June 2010. The interviewees included scholars, policy-analysts and arms control experts, some whom have previously held positions as officials in the government. The respondents were affiliated with various institutions, such as the military, the foreign ministry, government think-tanks, and universities. Many of them have been and are still directly involved in the making of Chinese nuclear policies, especially in the arms control and nonproliferation area, where some have taken part in international negotiations. These also include some of the scholars, who have provided policy advice for the government. Most of the respondents therefore have first-hand knowledge about the processes described in this thesis.

Much of the information provided by the respondents could not have been obtained elsewhere, and were therefore extremely valuable in the effort to understand the policy-making process in China. This is not surprising, given the sensitivity of the subject: As David Shambaugh has noted, interview data is often a very important source of insight when exploring Chinese foreign policy-making, as researchers through interviews can probe issues that Chinese might be “reluctant to write about and publish openly for reasons of censorship and government secrecy (1994, p.618)”.

Because of the wishes of the respondents, their identity is kept anonymous. Details about affiliation is also kept out of the thesis to ensure confidentiality. Most of the interviews were conducted in Chinese, while some, because of the language skills of the respondents, were conducted in English. All save two were taped.¹¹ Most of the

¹⁰ During one of the interviews, two respondents participated.

¹¹ Two of the respondents asked for the interview not to be taped. The taped interviews were not fully transcribed, but a summary was written of all interviews, and in addition, the tapes were used as a backup.

interviews were conducted in a private setting with only the interviewer and the respondent present, but on two occasions, there were also other people present.¹² On at least one of these occasions, this was due to the nature of the subject: Before the interview, the respondent stated that when meeting foreigners for interviews, the institution did not allow such meetings to happen without at least one other employee present. Obviously, this might potentially have impinged on the respondent's possibility to speak freely.

The respondents were not all interviewed about the same issues. Even though a few questions of a very general character was asked to almost everyone, most were interviewed mainly about one or perhaps two of the cases in this study. This is due to the fact that many preferred to speak about the processes they had been involved with or had in-depth knowledge about. In addition, most interviews were undertaken in one to two hours, and time constraints therefore often did not allow interviewing everyone about all the three cases explored in this study.

It should also be added that more interviews were conducted on the NPT and CTBT cases than about force structure. This is because it early proved to very hard to interview respondents about this issue: It was difficult to get much information on the internal policy-making process, and the answers provided were often very much in line with official policy. This was probably due to the intense secrecy surrounding these questions, and that the respondents thus either did not know, or did not want to share their information. For the case-studies on the NPT and the CTBT, on the other hand, many of the respondents were more willing to give their perspective on the internal policy-making process, and the role of different actors. It was therefore decided during the fieldwork to focus more on acquiring quality interview data for these two cases, and to rely more on other material for chapter 3. Even though some interview data is quoted also in chapter 3, it is mainly in chapter 4 and 5 that these provided crucial information on the processes.

The respondents were selected based on relevance, or what Tansey (2007, p.769) refers to as “purposive” sampling. While this was clearly the most relevant

¹² In addition, as already noted, there was one interview where two respondents participated.

approach in this case, the combination of a non-probability sample and anonymous interviews is still problematic for the reliability of the study, as it would have been hard for another researcher to recollect the same data. The respondents were also largely chosen based on “convenience” (Tansey 2007, p.770). There were other potential respondents that would have been interesting to interview, but that would have been hard or even impossible to reach. This obviously includes the very top policy-makers, but also many government officials more generally, and especially personnel within sensitive sectors such as the military. Such problems face all foreign researchers in China: As Sokov et.al. point out, outside access to government agencies and departments is not only problematic, but interacting with such officials might also yield limited results, as they “tend to toe to the official line” (2009, p.6). For this reason, they argue that “Semigovernmental and nongovernmental actors offer a more available avenue of access” (Sokov, et al. 2009, p.6), which is also the approach used in this study. However, it should be pointed out that several of the the respondents are former officials, or have represented the government under various circumstances. As already mentioned, they are all very familiar with the processes described in this study, and many have been actively involved in policy-making.

Tansey (2007) notes that interviews are a highly valuable tool for researchers using the process-tracing method. However, there are also some potential weaknesses and drawbacks with interviews that are relevant to note in this context. As George and Bennett point out, there is a tendency among respondents to portray a “careful, multidimensioned process of policymaking” (2005, p.102), even if this does not confirm with reality, and how policy was actually made. In addition, Tansey (2007, p.767) notes that if interviews take place a few years after an event, memory lapses might be a problem. To this, it could be added that respondents might interpret events with the gift of hindsight. In this case, the respondents were interviewed about events taking place as long as twenty years ago, which makes this problem potentially significant.

To address the potential shortcomings of the interviewing method, the thesis also aims to cross-check information and triangulate the data, meaning that the

conclusions are corroborated by multiple different sources of evidence to increase validity (on this principle, see Yin 2003, pp.97-101). Searching for corroborating sources and triangulating data is an advantage in all case-study research, but as David Shambaugh has pointed out, because memories are often “selective and faulty”, it is perhaps especially important in studies on Chinese foreign policy-making (1994, p.618). This thesis seeks to achieve this aim by building on a range both Chinese language¹³ and English language sources written by Chinese analysts and policy-makers, providing additional insight into their views and perspectives. These include official statements, articles published in Chinese scholarly journals, and articles and papers written for international consumption by Chinese analysts.¹⁴ Also, especially in chapter 5, the thesis utilize declassified US intelligence material, all of which were obtained through the Digital National Security Archive (DNSA). Finally, the thesis draws on an extensive reading of the scholarly work on Chinese nuclear policies. All these sources are publicly available, which enhances reliability.

Even though a wide selection of data is represented in this thesis, the validity would clearly have been strengthened if the thesis contained more first-hand documentary evidence, such as archival data. However, when studying an issue surrounded by such intense secrecy as nuclear weapons policy, first-hand data is always in short supply. This problem is exasperated by the fact that China is an authoritarian state, where the secrecy surrounding the nuclear programs is even greater than elsewhere. This problem of data availability is potentially very serious, and threatens the validity of this study. It should be stressed that the data that is available must continuously be evaluated carefully, and that all the findings should be regarded as somewhat tentative until confirmed or falsified at a later stage by higher quality data.

Despite these caveats, it is important to keep in mind that the challenges related to data availability is something all foreign researchers face in China. Also, while much information about Chinese foreign policy-making remains opaque, China's

13 All translations of Chinese language materials is by the author, unless otherwise stated. The Chinese characters are transcribed according to the *pinyin* system.

14 For an excellent guide into open source materials and their quality in research on military issues in China, see (Medeiros 2003).

foreign and security policy making is still considerably more pluralistic and open than before, which makes it much easier for foreign researchers to explore decision-making processes than it used to be.¹⁵ Moreover, the topic is too important to be left unexplored; Instead, researchers will just have to deal with the fact that some data is simply unobtainable, and base their work on what is available, while taking the necessary precautions when interpreting their material.

1.5 Selection of cases

Because not all aspects of Chinese nuclear policy-making in this period could possibly be included in this study, the thesis focuses mainly on three case studies, namely the development of China's nuclear force structure, the Chinese decision to join the Nonproliferation Treaty, and the Chinese decision to sign the Comprehensive Test Ban Treaty. There are several reasons for focusing on these three cases.

First, the cases are chosen because of their importance. If the study is to provide a comprehensive view of nuclear policy in China, a part about force structure and modernization is needed, as this represents a key aspect of nuclear policy. The NPT and the CTBT, on the other hand, arguably represent the two single most important treaties China has agreed to adhere to in the nuclear realm, and therefore mark major turning points. The NPT is the cornerstone of the international nonproliferation regime, and by joining it, China brought it a large step closer to universal recognition. In addition to such symbolic importance, China joining also had a real practical meaning, as it made Beijing legally obligated not to spread nuclear weapons. The CTBT is arguably the most important arms control treaty negotiated in decades, as it puts significant constraints on its signatories, and includes a rigorous monitoring system for ensuring compliance. For China, the sacrifices of signing the treaty were potentially greater than for the other NWS, as stalling further nuclear tests not only constrains its ability to modernize its arsenal, but did so in a context where the arsenals of the other nuclear powers were much more advanced. Being the first treaty that China signed that potentially significantly infringed on its security, the CTBT marked

15 On this point, see SIPRI director Bates Gill's preface in (Jakobson & Knox 2010).

an important test of whether China was really willing to commit to binding arms control agreements, or was trying to “free ride” on such arrangements.

Second, since this study aims at testing the relevance of Solingen's theory, it is also important to choose cases with this goal in mind. The cases outlined, especially the case on force structure and modernization, and the one on the CTBT, represent something close to “least likely”-cases for the theory, as they highly related to national security (on the principle of "least likely" tests, see Gerring 2007, p.115). Such “high politics” is where realist theories are in their home court. Conversely, it present much less favorable conditions for a theoretical framework focusing on the importance of domestic political configuration and economic development strategy. For this reason, if the framework proves to be of use in explaining these cases, it might be an important indication of its further relevance.

Third, in order to get a comprehensive overview of Chinese nuclear policies, it is important to include cases that relate to different aspects of its nuclear policies. The three cases studied here will provide insight into both its arms control, its nonproliferation, and its force development and nuclear modernization policy. In total, this will represent the most important aspects of China's overall nuclear policy.

While doing in-depth studies on these three cases offers several benefits, it should also be pointed out that there are important cases that had to been left out of this study, which can obviously be problematic. For instance, the Chinese decision to join the Zangger committee (1997), as well as the Nuclear Suppliers group (2004) is only briefly addressed. In addition, the thesis leaves out the question of Chinese missile proliferation. While missile proliferation is not necessarily a part of China's nuclear policies, it is still clearly related to this issue, as its ballistic missiles is can be used as a means of delivery for nuclear weapons. However, while studies on these issues should ideally have been included, time and space limitations did not allow this.

1.6 Main findings

The study finds support for the hypothesis that changes in the Chinese regime's model

for domestic political survival, and its associated strategy for economic development, was a key driving force behind the changes in its nuclear preferences. Indeed, many of the policy shifts described in this thesis cannot readily be explained by other factors, and would probably not have taken place if it was not for China's reorientation in its domestic economic priorities. If its integration into the global economy was to be successful, Beijing had to engage with the international society on nuclear issues, and could no longer afford to be leading an assertive and uncooperative nuclear policy.

The effect of the changes in model for political survival on nuclear policies has been especially strong within the fields of arms control and nonproliferation. In both of the cases explored in this study – China joining the NPT, and China signing the CTBT – the wish to “internationalize”, and integrate into the global economy, had a clear restraining influence. The effect of internationalization was mainly due to two factors:

First, because of the reforms, China became increasingly sensitized to the importance of its international image, and the need to be perceived as a “responsible major power”. If China's reforms were to succeed, it needed a stable international environment, sound relations with its trading partners, and could no longer afford to be isolated internationally. The strong international support of both of these treaties, and the perceived negative image costs of remaining outside them, played a major role in the process of China changing its preferences, and opting for a cooperative policy.

Second, the reforms also led to China's leaders attaching key importance to bilateral relations with especially the United States, both because of its role as a major trading partner and source of investments and technology, and because of the United States being something of a “gatekeeper” into the global economy. In the aftermath of the Tiananmen crisis, relations with the Western countries in general, and the US in particular, deteriorated, and Chinese leaders deemed it as imperative to escape the international isolation. In the case of China joining the NPT, the wish to improve relations with the US seems to have played an important role, as Beijing knew that Washington would look favorably on China acceding to this treaty. In the CTBT process, relations with the US seems to have been an even more direct factor, as president Clinton made the conclusion of a CTBT a top priority, and China knew that

blocking the treaty could have had a strong negative effect on bilateral relations.

In the field of force structure and posture, change in the model for domestic political survival and economic development strategy also seems to have had a marked influence on China's policies, albeit in a slightly different, and perhaps more limited fashion. Here, the main effect was that it led China to curb its spending on the strategic programs, and direct these funds into the civilian sector instead. Throughout the 1980s, this led to a strong de-emphasis of the strategic programs, and to a drastic reduction in the size of the Chinese arsenal. From the mid-1990s, however, this economic disincentive started to weaken somewhat, as China could increase its defense spending after years of economic growth. That China still did not increase the size of its arsenal by much and led only a modest modernization effort, was arguably mainly due to the fact that China's leaders strategic thinking, and the fact that a small arsenal was seen as sufficient for deterrent purposes, which is a cause unrelated to the analytical framework. However, with some powerful military constituents arguing for a change in strategy and an increase in the size of China's nuclear forces, the lack of willingness to engage in a nuclear buildup was probably reinforced by the fact that the leadership feared this could harm its international image.

These results point to an interesting phenomena, namely that the causal mechanisms linking China's internationalizing model for domestic political survival with nuclear policy are somewhat different according to policy area. In terms of arms control and nonproliferation, the effect has been mainly through internationalization. Seemingly, this effect have continuously been strengthened as China has become more integrated into the global economy: China started to somewhat reluctantly change its policies in the 1980s, and has gradually become more and more involved in such efforts, joining some key treaties especially during the 1990s. In terms of its nuclear modernization program, the effect has mainly been that it led China to deemphasize nuclear weapons during the 1980s, when the country was still very poor, and funds were needed elsewhere. This economic disincentive seems to have been gradually weakened, even though China's growing wealth has not lead to any major increase in the size of its arsenal, and modernization efforts have remained modest.

The empirical support for the main hypothesis indicates that the theoretical framework could be relevant for explaining the nuclear policies also of other NWS. At the same time, the findings also indicate that the the framework could be further refined, and that it could point to more explicit and narrow causal mechanisms than Solingen's framework, which lists several possible candidates. The final chapter will analyze the theoretical and policy implications of these findings more thoroughly.

1.7 A road map to this thesis

This thesis proceeds as follows: Chapter 2 lays out the main theoretical framework that will be tested in the subsequent chapters. It points to the necessary adjustments and conceptual modifications that have to be made to Solingen's theory if its to be put to test in the Chinese case, for instance that the dependent variable has to be redefined. In addition, the chapter briefly points to a potential rival explanation of nuclear restraint offered by neorealism. Chapter 3 explores China's evolving nuclear force structure since the 1980s, and the sources of China's restrained nuclear posture. Chapter 4 analyzes Beijing's decision to join the NPT. It starts by examining the shifts in Chinese nonproliferation policies during the 1980s, and tries to explain the timing of China's NPT accession. Chapter 5 studies why China agreed to sign the CTBT, and forfeit further nuclear testing, despite the fact that this limits China's options in modernizing its arsenal. Finally, chapter 6 summarize the key findings of this study, and outline potential implications of these findings for theory and policy.

2 A Framework for Understanding Chinese Nuclear Policy

The central puzzle this study seeks to answer, is what have motivated the changes in China's nuclear policies since the 1980s. More specifically, it seeks to explain the causes behind Beijing's relative nuclear restraint, both in terms of the development of its arsenal, its arms control policies, and its nonproliferation policies. If we are to understand these questions, there is need for an analytical framework that can explain the shifts in Chinese nuclear policies along several different dimensions.

The main argument presented in this chapter builds on a liberal theory developed by Etel Solingen. In her seminal study *Nuclear Logics* (2007), the central question is what motivates some states to launch ambitious strategic programs, while other states, even if they face a challenging security environment, choose to forfeit building such powerful weapons. Her key claim is that nuclear policy is often guided by the economic orientations of a regime. According to the theory, a regime pursuing a strategy of economic integration into the global economy to secure its domestic political survival, is much less prone to seek nuclear weapons than an inward-looking, less integrated one. Even though the study object in question here is clearly different, as China is a full-blown nuclear weapons state, and not a potential nuclear aspirant, Solingen's framework, if modified somewhat, could be well-suited also for explaining the policies of a NWS. Despite differences in the dependent variable, the basic rationale that the framework seeks to explain, namely the causes of nuclear *restraint* or nuclear *assertiveness*, is similar to the one in question in this study.

Based on this framework, it is hypothesized that China's movement towards a more restrained nuclear policy is largely the consequence of changes in domestic priorities, and its gradual engagement with the global economy. As China emerged from its isolation and sought economic growth through participation in international markets, it could no longer afford, both economically and politically, to be seen as leading an aggressive and uncooperative nuclear policy, and therefore gradually had to change its behavior.

This chapter proceeds as follows: It first lays out the basics of Etel Solingen's framework for understanding nuclear restraint, including the ideal-types utilized for analyzing a regime's model for domestic political survival, and the proposed causal mechanisms leading to the different outcomes, namely pursuit or forfeiture of nuclear weapons. It then puts forward some conceptual modifications that have to be made if the framework is to put to use in the Chinese case, including a redefinition of the dependent variable. Next, some of the pros and cons of utilizing Solingen's theory is evaluated. Finally, a neorealist alternative explanation of nuclear restraint is briefly sketched. Throughout the study, this framework will also be evaluated to see whether it might offer a more persuasive explanation of Chinese nuclear policies than Solingen's liberal variant.

2.1 A theory of nuclear restraint

More than sixty years after the outset of the "nuclear revolution", a question that keeps intriguing IR scholars, is why a great number of states, despite having the capability to do so, have chosen not to acquire the most powerful weapons ever invented. Arguably, this phenomena challenges some of the core notions of realism, the dominant IR theory in the post-War period. Because many realist scholars assume that a state seeks to maximize security, and because one state's effort to enhance its security will often produce insecurity among other states, thus potentially triggering an arms race, realists have predicted that further nuclear proliferation is likely (Mearsheimer 1990; Mearsheimer 1993). They have also generally tended to view nuclear weapons as a revolutionary source of security for states, with some seeing nuclear weapons as a great force for peace, because the disastrous consequences of attacking a nuclear-armed adversary make conquest too costly to be a viable option (Waltz 1981; Van Evera 1990). However, the realist theory seems to leave unanswered the great puzzle of why so many states have forfeited nuclear weapons, and chosen restraint.¹⁶

16 Other important realist analysis of nuclear weapons include (Goldstein 2000; Jervis 1978). Goldstein's study of why states develop nuclear weapons does not give the question of nuclear restraint any attention. As it focus solely on the "second-ranking powers" (France, UK and China) and the reasons for their nuclear decisions, it might be seen as an blatant example of choosing cases by their value on the dependent variable. Scott Sagan has noted that this is a problem with realist analysis of nuclear weapons policy more generally, pointing out that "an all too common intellectual strategy in the literature is to observe a nuclear weapons decision and then work backwards, attempting to find the national security threat that 'must' have caused the

Arguably, part of the reason behind neorealism's inadequate account of nuclear proliferation lies in its failure to look inside "the black box", and take note of the importance of the domestic context in nuclear policy-making. In the article "The Political Economy of Nuclear Restraint" (1994), and subsequently in her book *Nuclear Logics* (2007), Etel Solingen seeks to address this issue.¹⁷ Her basic suggestion is that there is a relationship between a regime's domestic models of political survival and its associated economic policies, and choices made in the nuclear domain. This suggestion is based on an observation that regimes where the rulers and the coalition supporting them is hostile to economic openness, have been more likely to seek to develop nuclear weapons capabilities than those where the domestic ruling coalition favor integration in the global economy, trade liberalization, and seeks to attract foreign investments. In contrast to neorealist logic, economic orientations and domestic politics is therefore deemed to be of central importance in explaining nuclear outcomes.

Solingen's theory is clearly of a liberal strand, and bears similarity to neoliberal interdependence theory, such as that put forward by Keohane and Nye (1989). However, she claims the theory to be different from this "grand theory" in some important respects, as it offers "a more precise link between economic liberalism and the probability of cooperation than general theories of interdependence have postulated" (Solingen 1994, p.164). Moreover, it further clarifies how economic globalization affect states differently according to their domestic orientations. However, even if a regime's model of domestic political survival is the key variable in the framework, it also points to the importance of international dynamics, as it is claimed that a stable regional environment where neighboring states adopt the same internationalizing strategy, is a boon, as such policies are synergistic. On the other hand, the presence of inward-oriented, aggressive nuclear aspirants in the region make adoption of internationalizing policies more difficult, and might strengthen constituents internally that are resisting integration into the global economy (Solingen

decision." (1996, p.63)

¹⁷ There are also other scholars that have pointed to the fallacy of overlooking the domestic context. For an excellent treatment of this question, see (Sagan 1996).

2007, pp.40-47).

Testing the theory through a focused comparison of two regions, East Asia and the Middle East, Solingen finds the regimes' preference for joining or rejecting the global economy to be a key reason why countries in the former have largely forfeited nuclear weapons, while many countries in the latter have tried to acquire them. Throughout the case studies, she proceeds in a kaleidoscopic manner, testing also other main international relations theories and frameworks, such as neorealism, neoliberal institutionalism, and social constructivism. She does not deny that these paradigms and phenomena such as power balancing, security dilemmas, institutions, or non-acquisition norms, might contribute with explanatory power, or that a regime's model for domestic political survival is the only relevant variable for explaining a state's policy. Still, she argues that it is a very important, and often omitted variable, and that none of the major theories are able to provide a satisfactory explanation for differing nuclear choices (Solingen 2007).

An important implication from the theory, is that nuclear policy within a given state might vary significantly over time. Because it posits domestic conditions and the preferences of the ruling coalition to be of fundamental importance, trajectories are not irreversible, as developments within a country, and changes in leadership or their favored model of political survival, might affect their nuclear preferences (Solingen 2007, p.285). If domestic political and economic conditions change, a state might thus move both towards further or lessened nuclear restraint, even in a situation where the external environment and perceptions of threat remain relatively constant.

2.2 Ideal-type models of political survival, and their effect on nuclear policy

With domestic models of political survival being the key independent variable of the framework, it is important to give it a further definition. The framework includes a set of three ideal-types, each of which denote different strategies or models for political survival for a regime. They are divided into inward-oriented, internationalizing, and compromise-hybrid models, according to their preference on joining or remaining

secluded from the global economy. Related to these ideal-types, it also delineates the causal mechanisms explaining why inward-looking regimes are generally more inclined towards nuclearization, whereas internationalizing ones are prone to show restraint (the compromise-hybrid model is less clear cut). The features of each of these ideal-types, and the associated causal mechanisms will be outlined below.

The main feature of the inward-oriented model is said to be the ruling coalition's unwillingness to join the global economy, and the adoption of import-substituting strategies and trade barriers as economic policy tools. Regimes adopting such a model also strongly resist pressures of economic reforms put forward by economically liberal international organizations as the IMF, WTO, and the World Bank, and label such institutions as threats to national sovereignty masterminded by the Western world. Such leaders receive their support from constituents such as

uncompetitive and protected industries, the associated military-industrial complex, civic-nationalists, ethnic-religious groups, and state bureaucracies threatened by internationalization, underemployed intelligentsia, and scientists and technologists highly dependent on state subsidies and military procurement (Solingen 2007, pp.41-42).

The reason adherents of this model of domestic political survival is said to favor nuclearization is said to stem from three rationales. First, instigating a nuclear weapons program "enable[s] the construction of a dense scientific, technological, industrial, military, and bureaucratic complex that can dwarf other economic endeavors" (Solingen 2007, p.42). Second, there is often a lack of forces restraining this complex, giving it a large degree of autonomy. Third, as noted above, nuclear weapons programs might be utilized by inward-looking leaders to boost their legitimacy by creating national myths of "invincibility and modernity" (Solingen 2007, p.42). In addition, the costs associated with nuclearization (which will be outlined below) are also much lower than for an internationalizing regime.

The internationalizing model of survival, on the other hand, is based on a strategy where economic reforms and export-led industrialization plays a central part. If leading coalitions are to adhere to such a strategy, they have to promote policies that lead to expanding economic activities and that attract foreign investments. Bloated military budgets are inconsistent with such a model, as are barriers to trade and non-

compliance with international institutions demanding liberal economic policies, such as the IMF, WTO and the World Bank. If a country is to embark on promoting integration in the global economy, a certain degree of macroeconomic and political stability is also required. The domestic allies of leading coalitions adopting such strategies are likely to be found among

export-intensive sectors and firms, highly skilled labor in competitive industries or firms, mobile capital, professionals oriented toward an open global economic and knowledge/technology system, consumers of imported products, ethnic and religious groups thriving under openness, and state bureaucracies steering economic reform (Solingen 2007, p.42).

There are several reasons why such a model of political survival is inconsistent with nuclearization. First, nuclearization might strengthen opponents of internationalization, shifting resources in a way favoring their constituents, such as the military-industrial complex. Second, by laying claim to large resources and draining national budgets, costly nuclear programs might harm the domestic economy, which might again severely hurt internationalist coalitions dependent on economic growth for legitimacy. Third, seeking nuclear weapons could potentially damage "efforts to boost competitiveness and global access to markets, technology, investments, foreign aid, and external political support for policies underpinning such models" (Solingen 2007, p.43). In a global economy where Western countries have traditionally played a dominating role, countries opting for nuclear weapons have been met with strong suspicion. Furthermore, nuclearization might dampen efforts to promote regional cooperation, which is often a key concern for internationalizing alliances.

Finally, the compromise-hybrid model of survival is said to emerge when there are opposing forces with strongly competing visions of which model of survival to adopt, forcing them to form a compromise coalition. In such a coalition, the differing forces seek to take control of state agencies, "sometimes excluding other agencies from any oversight of their own fiefdoms (Solingen 2007, p.43). Iran is said to have been an example of such a regime, even though the nationalist, inward-oriented forces opposing internationalization were clearly strengthened with the conservative Mahmoud Ahmadinejad's rise to power in 2005. With a compromise-hybrid regime, nuclear policies are not clear-cut, but are portrayed as being likely to remain contested among different constituents.

It is important to note that these models are Weberian ideal types, and that they thus do not necessarily conform to any real-world situations. They are supposed to function as heuristic devices, and thus, they are "a purely ideal *limiting* concept with which the real situation or action is *compared* and surveyed for the explication of certain of its significant components." (Weber, quoted in Ruggie 1998, p.860). Even though reality rarely conforms with the ideal types, they can be of potentially great use in order to see whether or not leaders' choice of political strategy display parts of the characteristics presented in the ideal types.

2.3 Applying the framework: The scope conditions

Even though Solingen finds strong support for her hypothesis in the empirical cases examined, she also notes some potential restrictions on the utility of the theory. First of all, like almost all social science theories, it is probabilistic, and it is not denied that there might be cases where internationalizing leaders embrace nuclear weapons, as well as cases where inward-looking ones shun them (Solingen 2007, p.286). As pointed out above, it is also granted that other paradigms might contribute with explanatory power, and that while model of political survival is the key explanatory variable, norms, institutions, and power balancing might also be of relevance.

In addition, the propositions are bounded by three scope conditions. First, the theory's conditions of necessity and sufficiency is that "resistance to the global economy provide only near-necessary but not sufficient conditions for the development of nuclear weapons programs", while "Internationalizing models may not be necessary but are likely to be sufficient for denuclearization" (Solingen 1994, p.18). The theory's explanatory power is in other words stronger when applied to cases of restraint than to cases of states seeking to go nuclear. Second, these conditions are also bounded by regional circumstances, as the models of neighbors in the region are postulated to have influence on internationalizing leaders. If other leaders in the region adopt inward-looking strategies and opt for developing nuclear weapons, this might severely impede leaders otherwise willing to favor internationalization. Third, the theory is bounded by "temporal sequence in the acquisition of weapons" (Solingen

2007, p.19), as countries that have already acquired nuclear weapons might not be affected by disincentives related to internationalization in the same way. This, it is claimed, is possibly due to the "endowment effect" listed by prospect theory, as people value what they already possess more than potential future gains. Still, such disincentives are not necessarily non-existent, as Solingen believes South Africa's forfeiture of nuclear weapons arsenal indicates (Solingen 2007, p.19, 304). In addition, it is also stated that the theory is aimed at explaining developments in "the second nuclear age", that is, after the conclusion of the Nonproliferation Treaty in 1968 (Solingen 2007, p.3).

If the model is to be put to test in trying to explain Chinese nuclear behavior, some conceptual modifications are therefore needed. As China has not only acquired such weapons, but also remains one of the legally recognized nuclear states, the theory will clearly be stretched beyond its scope conditions. This means that the theory will be put to use outside its area of claimed validity, and for this reason, this study should not be seen as theory testing one, as it puts the theory to an "unfair" test, but rather a test of whether or not the theory might function outside its scope conditions.

2.4 Redefining the dependent variable

If the framework is to be applied to a NWS, we also need to redefine the dependent variable. The dependent variable in this study is also nuclear restraint or assertiveness, but here, it cannot be seen as more or less dichotomous variable, with "nuclearization" and "denuclearization"¹⁸ as the two only values: For a NWS, a the question of what constitutes a "restrained" policy is much more complex issue.

How should we define and measure "nuclear restraint" then? First, it is useful to note that the nuclear policies of a NWS could be seen as consisting of several policy areas, where chosen nuclear force structure, arms control policies and nonproliferation represent three key aspects. Clearly, policies in these areas are interrelated, but still, they should arguably be seen as representing different aspects of a state's overall policy. It is possible for a state to have divergent policies in these areas: For instance, a

¹⁸ Nuclearization is suggested to mean "movement *toward* nuclear weapons acquisition, even if it does not result in actual acquisition, and 'denuclearization' to suggest renunciation (Solingen 2007, p.301).

state can actively pursue to enlarge its arsenal and shun arms control treatments, but still agree to adhere to nonproliferation norms. Furthermore, in all areas, it is possible to undertake restrained and accommodating or aggressive and uncooperative policies. Finally, it should be underscored that while these aspects represents different parts of a country's nuclear policy, and all of them might be interesting to analyze in themselves, they can also be seen as indications of overall nuclear orientation.

A problem with all these different aspects in that they are harder to measure than the original framework's more clear-cut dependent variable.¹⁹ What constitutes a restrained arms control and nonproliferation policy, is difficult to give a very precise definition. Membership in treaties is not a good enough measurement in itself: For instance, it should also be taken into account to what extent a state actually complies with the treaties in question, to avoid including "false positives" (states that ratify treaties with no intention of actually implementing them, or adhering to them) (Simmons 2009, pp.67-79). Also, it is important to evaluate to what extent these treaties pose any significant restraints on the state, or could be seen a merely giving the state a possibility to "free ride", which some have claimed to be a feature of for instance China's arms control policies (Johnston 1996a). In addition, it should arguably also be taken into account whether or not a state is willing to negotiate new treaties, or blocks such initiatives. Trying to take all these different aspect into account, nuclear restraint in the case of both nonproliferation and arms control could be seen as a function of : *Willingness to join and adhere to existing treaties and regimes, especially those that pose concrete constraints on the state, as well as willingness to negotiate further treaties.*

Reaching an agreement on how to measure whether or not a state's nuclear force structure is restrained is even harder. While the ultimate restraint would obviously be to forfeit nuclear weapons altogether, it is very difficult to define exactly how much a state would have to increase its arsenal size before it should be seen as aggressive build-up, or by how much (if anything) it would have to reduce it before we

¹⁹ In fact, also Solingen's dependent variable presents certain measurement problems. As Potter and Mukhatzhanova (2008, p.147) point out, the dependent variable, and the use of the terms nuclearization or denuclearization is not always entirely consistent. In addition, these broad categories might put together countries that were on a very different stage in their process towards developing such weapons, or renounced them at very different stages.

could call its policy restrained. With this question, several other factors also have to be taken into consideration, for instance the speed of its qualitative modernization drive, and perhaps also the configuration and readiness of its forces, as well as its doctrine. Furthermore, it is also obviously relevant to consider the initial size of a state's arsenal, and not only changes. A 50 percent decrease in the arsenal for a NWS with a relatively small nuclear force could potentially have much greater strategic significance – and therefore be an even stronger sign of restraint – than a 50 percent decrease for the US and Russia, that already have thousands of warheads in their stockpile. Similarly, whether an expansion of its arsenal and a modernization drive should be seen as aggressive or not, arguably also depends on initial size and outlook. For a state with a small and technically backwards nuclear force, such a drive might perhaps not necessarily be the result of an assertive nuclear policy, but rather be the result of other states enjoying a strong superiority. It is hard to include all these considerations, but if summed up, restraint or non-restraint could be seen as a function of: *Speed and scope of expansion or reduction of force levels, as well as modernization measures and configuration, seen in relation with existing arsenal size and outlook.*

Giving the dependent variable a clear definition makes it easier to take into consideration which factors that have to be evaluated in the empirical chapters. It does not, however eliminate the potential for disagreement of measurement, which is hard to overcome: What some might argue to be a restrained nuclear modernization drive, others will inevitably see as aggressive expansion. Such problems of interpretation is probably inevitable, however, and finding an unassailable method of measuring nuclear restraint – or a widely accepted definition of what nuclear restraint for a NWS means – is likely to be hard.

2.5 The pros and cons of Solingen's framework

With several other frameworks for explaining nuclear policy being available – for instance neorealist perspectives, general interdependence theory, as well as social constructivist frameworks – why opt for the one developed by Solingen? The

following section points out why Solingen's theory has several potential advantages that might make it well-suited to analyze the Chinese case.

First, while there are other framework that address nuclear issues more generally, Solingen focus clearly on the issue of nuclear restraint and its causes. Arguably, the theory is among the most developed ones in explaining the phenomena of why many states have chosen to forfeit nuclear weapons. In a review essay, William Potter (2010) points to weaknesses in several other possible explanations (for instance, the existence of alliances, which some neorealist scholars point to, or non-acquisition norms, which is a social constructivist explanation²⁰). He also notes that Solingen's theory is applicable to other cases than the ones analyzed in her work, pointing to that especially Ukraine's denuclearization, but possibly also Kazakhstan's, seem to be in accordance with the framework (Potter 2010, p.74). As nuclear restraint is the focus also of this study – albeit for a NWS, and not a nuclear aspirant – it might also be able to provide insight into the logic of China's changing nuclear preferences.

Second, a major advantage of the framework is its focus on the importance of domestic politics. As David Lampton has argued, also in China, “Daily requirements for political survival and the priority of domestic agendas have been central foreign policy drivers” (2002, p.280). Despite this, Joseph Fewsmith and Stanley Rosen point out that “Discussions of Chinese foreign policy decisions rarely take into account in more than a cursory fashion the domestic context in which those decisions are made” (2001, p.151). For this reason, employing a framework which incorporates such variables might prove important if we are to understand the dynamic driving Chinese nuclear policy decisions.

Third, and related to the second point, it is also an advantage that the framework focuses on economic variables, as domestic economic considerations have played an increasingly independent and important role in framing Chinese foreign policy since the initiation of the reforms (Naughton 1994). To what extent, and in which areas this amounts to economic interdependence placing constraints on China's actual behavior, is a contested subject (for a discussion on this issue, see Moore & Yang 2001). This

²⁰ For a study of the effect of nonproliferation norms, see (Ruble 2008).

study might contribute to this discussion, as it explores whether economic concerns and possibly interdependence has had an effect on a key security question like nuclear policy.

However, even though the framework holds several advantages, there are also some potential shortcomings and problems that should be addressed. The theory is fairly complex, and lacks the parsimony of for instance neorealism. In addition, as it is a theory only of nuclear proliferation, and lists several additional scope conditions, it is much less generalized than the alternative theories Solingen points to (neorealism, neoliberal institutionalism, social constructivism, as well as democratic peace-theories). Arguably, it is what George and Bennett (2005, pp.7-8, 268) would label a “middle-range” theory, which is clearly not a problem in itself, but which perhaps makes comparison with “grand theories” somewhat unfair. This is relevant also in the context of this thesis, as it seeks to evaluate also the potential explanatory power of neorealism.

In addition, that the theory points to three main reasons why inward-oriented regimes might favor nuclear weapons, as well as three main reasons why internationalizing ones tend to forfeit them, is perhaps realistic, as many of these are probably interrelated. However, it is also potentially problematic, as it raises the specter of overdetermination. Including several possible causal mechanisms linking the main independent variable (model for domestic political survival) with the dependent variable (nuclearization) makes the links between the two somewhat fuzzy, as it is difficult to judge which one that really matters, and if any of the others might be spurious. The framework does not try to evaluate the relative importance of these different mechanisms, or under what circumstances one might expect one or several of them to be at play. In short, the analytical framework would be more refined if it pointed to a more exact causal mechanism, instead of listing multiple candidates.

Also, some of the causal mechanisms in the framework are arguably not that well-defined, especially when it comes to explaining inward-oriented regimes' assumed fondness for nuclear weapons. The notion that nuclearization entails fewer costs than it does for internationalist regimes seems intuitively reasonable, as does the

point that inward-looking regimes allow the construction of large military-industrial complexes that can operate without oversight. However, none of this explains exactly *why* such regimes are likely to seek to develop nuclear weapons, as it arguably points to lack of disincentives rather than incentives. The last main suggested rationale – that nuclear weapons can be an important source of myths of invincibility and modernity, and that inward-oriented regimes have had a strong tendency to rely on such myths for both domestic and international gains – is different in this sense, but the causal linkage between regimes and such myths is not that clear. The suggested causal mechanisms causing internationalizing regimes to forfeit nuclear weapons because of numerous disincentives, on the other hand, are much more clearly defined.

Finally, the fact that she grants that other paradigms might also contribute with explanatory power is intellectually honest, and serves the purpose of bridge-building between theories. However, it might also prove problematic in some respects, as it potentially makes it more difficult to put the theory to test. If the theory had been “bolder” in its claims, it would have been more readily falsifiable, now, deviant cases can perhaps be explained away with reference to other theories.

Despite these caveats, the framework still seems suitable to explain the Chinese case, and will therefore be employed in this study. Also, this study might be an occasion to address some of these problems, for instance the issue of several competing causal mechanisms, and which of these (if any) that link the predatory and the predicted variable for nuclear weapons states.

2.6 An alternative framework: The neorealist perspective

Finally, even though this thesis mainly sets out to utilize and test the relevance of Solingen’s theoretical framework, this chapter will also point to how a neorealist framework would portray nuclear restraint or assertiveness. This perspective is included for two reasons: First, to illustrate clearly the differences between how Solingen’s framework and a neorealist would explain nuclear restraint; second, because the study throughout the empirical chapters evaluates also the explanatory power of this paradigm. Neorealism comes in different shapes and versions that also

have different takes on nuclear policy, but here, the focus is on the views expressed by some defensive realists scholars, and how such perspectives explain nuclear restraint for a NWS, both when it comes to both force levels, arms control, and nonproliferation policies.

As their point of departure, neorealist scholars portray the international system as anarchic, and states being the fundamental units of the system. The states' basic goal is to ensure their security and survival in this system,²¹ and because of the lack of central authority, and the difficulty of trusting other states, the states only means for pursuing this goal is *self-help*. Cooperation between states is difficult to achieve, as both the risks and costs of being cheated by other actors are potentially high. Since states have reason to fear that the advantage of a potential adversary might be used against it, they are concerned with relative gains, not absolute gains, as even beneficial policies present a risk if they place adversary states in a position of relative advantage (see for instance C. S. Glaser 1994). In such a world, nuclear weapons are obviously seen as attractive, since they are a revolutionary source of security because of their immense destructive power (see Jervis 1979; Waltz 1981; Van Evera 1990).

2.6.1 The offense-defense balance and the size of nuclear arsenals

An important feature of the international system derived from these assumptions, is the persistence of *security dilemmas*. It is the near impossibility of trusting other states' intentions that lead to security dilemmas: States seeking to ensure their own security, for instance by increasing their military power, might provoke suspicion of their intentions from other actors. This might again lead to reactions that trigger arms races, as states should seek to gain a military advantage, and must at all costs try to avoid giving their adversaries one. Even if they are not interested in triggering an arms race, states are thus often likely to be forced into an action-reaction cycle, as they have to answer to military build-ups from other actors. Reaching arms control arrangements is hard, and if they can be reached, they are hardly trustworthy, as states constantly have to fear being cheated. (Jervis 1978; C. S. Glaser 1997).

21 Though also concerned with state security, postclassical realism part ways with neorealism here, as it portrays states as seeking to maximize power, rather than security. On the difference between postclassical realism and Waltzian neorealism at this point, see (Brooks 1997, pp.459-463).

Security dilemmas have often been portrayed as an important source of war, since states might often believe that a potential adversary is planning an attack by increasing its military power. However, in a landmark article, Robert Jervis (1978) notes how the possibility of war largely depends on the nature of weapons technology, and whether or not they favor the *offense* or the *defense*, as well as whether or not it is possible to distinguish them. If a state increases its defensive power, and rival states can discern that this weaponry is intended for defensive purposes, or at least that this increase will not increase offensive power by much, the security dilemma is largely mitigated. If the technology favors the offense, on the other hand, a state increasing its military power is more likely to be seen as a potential threat, and war is more likely (Jervis 1978).

Nuclear weapons are believed by neorealist scholars to have a game-changing impact on the offense-defense balance. In practice, they are seen as a force that heavily favors the defense, and makes attacking meaningless, “because the attacker will be destroyed in turn”. (Jervis 1978). Jervis further points to that as long as a state has a secure second-strike capability, there is no need for further nuclear weapons, because assured destruction is enough to deter an enemy from attacking (Jervis 1978; Jervis 1979). Other neorealists have made similar arguments. For instance, Kenneth Waltz (1990) believes it to be “folly” to build further nuclear weapons once second-strike capability is assured. He further argues that with such a capability in place, states can also safely engage in arms control treaties, noting that such endeavors can wield important political and economic benefits, even though they would have no military significance (Waltz 1990, p.741).

2.6.2 Neorealist sources of nuclear restraint

The arguments put forward by some defensive realists about the revolutionary nature of nuclear weapons therefore hold important implications for the sources of relative nuclear restraint for a NWS, both when it comes to its force structure, as well as its arms control policies. According to their logic, as long as it has invincible nuclear forces, a state does not need to enlarge its arsenal, and can engage in arms control without any risks. This argument could be furthered to also include non-proliferation

measures. A state with a second-strike capability arguably does not need to balance against other states by spreading nuclear weapons, and can therefore safely adhere to nonproliferation norms. In sum, we should expect states, if they act rationally, to build a small but secure nuclear force, and perhaps be willing to engage in arms control and nonproliferation once that capability is secured.

An obvious problem with this explanation for nuclear restraint, however, is that there seems to be very few cases that corroborate with these expectations. Of the nuclear powers, two of them built nuclear arsenals vastly bigger than what this perspective would suggest as rational, and were not as willing to engage in arms control as one should expect them to be.²² In addition, as pointed out above, there are potentially a great number of cases of states being too restrained, as they have agreed to numerous arms control and nonproliferation arrangements, and forfeited nuclear weapons, despite facing a challenging external environment. With such a great amount of deviant cases, there is reason to question whether a realist account of the nuclear restraint of a NWS has explanatory power even for cases that confirm with its expectations.

Leaving this problem aside, this study will still throughout the chapters evaluate this possible explanation of Chinese nuclear restraint. If these realist assumptions holds true in the Chinese case, we should expect that China started to restrain itself once had developed a secure second-strike capability. China's willingness to change its arms control and nonproliferation policies should also be seen as a direct consequence of its confidence in its retaliatory capability, and the military irrelevance of such treaties.

22 Waltz (1990, p.741) obviously knows that his arguments about the rationality of keeping a relatively small arsenal cannot explain US and Soviet policies during the Cold War, and argued that the arms racing of the superpowers was the result of fuzzy thinking, as well as and internal pressures. However, while this might be the case, "fuzzy thinking" and "internal pressures" are reasons that are alien to his own neorealist framework.

3 The origins of China's nuclear force structure

Ever since it first crossed the nuclear threshold in 1964, China's development of its nuclear force structure has been strikingly different from its Cold War superpower adversaries. For decades, China kept the smallest nuclear arsenal of the five recognized nuclear powers, and throughout the Cold War and beyond, its forces remained unsophisticated and vulnerable (Fravel & Medeiros 2010, p.48). While the crude nature of China's arsenal might have been due to resource constraints during the Mao Era, since the 1980s, astonishing economic growth has provided China with the ability to expand the size of its arsenal significantly. But despite this, the speed and scope of the modernization efforts have remained modest, and have not yet resulted in any major quantitative buildup; indeed, in the words of some analyst, China's strategic arsenal has been growing at only a "glacial pace" (Lieber & Press 2006, p.27). This nuclear restraint has surprised scholars and policy-makers alike, especially in the US, where many have been expecting the country to embark on a significant buildup of its nuclear might.

The most commonly accepted explanation of the special nature of China's force structure, is that it is a reflection of an enduring strategic rationale, and that its leaders since the Maoist days have pursued "minimum deterrence". In recent years, this thesis of nuclear minimalism has been thoroughly explored by Jeffrey Lewis (2007). Lewis claims that China's leaders believe deterrence is largely insensitive to changes in size, readiness and configuration, and that a small nuclear arsenal is sufficient to deter a much stronger adversary. This belief is claimed to have guided Chinese nuclear weapons planning ever since the PRC crossed the nuclear threshold in 1964 (Jeffrey G Lewis 2007, pp.1-2). For this reason, Chinese leaders supposedly do not see the need for a larger arsenal.

That China's force structure has been informed by such an enduring strategic rationale is a powerful explanation of Chinese nuclear restraint. However, with its focus on continuity, there are still some important fluctuations that it leaves unaccounted for. Most notably, it cannot fully explain the Chinese leadership's strong

de-emphasis of nuclear weapons in the 1980s, when budgets decreased significantly, and the total number of deployed weapons were more than halved. Given a continuing belief in the sufficiency of a small arsenal to deter its adversaries, both budgetary allocations and especially the total number of deployed weapons should arguably have remained relatively stable.

This chapter begins with an evaluation of the Chinese nuclear arsenal and its main features, and then lays out the thesis of nuclear minimalism in more detail. The following section examines the de-emphasis of nuclear weapons happening in the 1980s, and analyzes the reasons behind these fluctuations. The final section explores nuclear developments in the 1990s and beyond. In this period, there was to some degree an increased focus on nuclear weapons development in China, and an growing recognition that its arsenal was vulnerable. However, even though this led to a strengthening of the effort to increase survivability, and even though China's overall defense budgets started to grow substantially, China still kept modernization efforts relatively modest and refrained from increasing the size of its arsenal significantly.

The main argument presented in this chapter, is that the Chinese de-emphasis of nuclear weapons during the immediate post-Mao period was largely a result of the initiation of Chinese reforms, and the changing view on the relationship between economic development and having an ambitious strategic program. The reformists leaders increasingly came to realize that resources spent on nuclear weapons could inhibit China's economic growth, which remained their overarching goal, and thus, their nuclear preferences shifted. In addition, the reforms also created additional incentives to avoid a nuclear buildup, especially because such an effort would have had potentially high political and economic costs that could have threatened or even derailed the reform efforts. For this reason, even though the thesis of Chinese nuclear minimalism still offers important explanatory power when analyzing China's chosen force structure, a framework focusing on the importance of a regime's economic orientations provide key additional insight into Beijing's nuclear logics.

3.1 The Nuclear Arsenal of the PRC

Even though the exact specifics of the strategic weapons force of the PRC is a closely kept secret,²³ it is generally acknowledged that China's arsenal has remained relatively small ever since it joined the nuclear club in 1964. Most sources estimate that China now possess somewhere between 100-200 nuclear warheads: For instance, the 2010 SIPRI yearbook put the total number of operational nuclear weapons at 200, but claims that as there are probably some additional warheads in storage, the total number of warheads might amount to 240 (Kile et al. 2010, p.354). Carnegie Endowment for International Peace (2009), on the other hand, put the total number at 125. According to some analysts, only around 80 of these are kept operationally deployed, all of them for use with its land-based ballistic missiles, the most important leg of China's nuclear triad (Jeffrey G Lewis 2007, p.1; see also Norris & Kristensen 2008). Supposedly, the size of the Chinese stockpile has not changed significantly in recent years (Kile et al. 2010, p.353).

In addition to being relatively small, the Chinese nuclear force has also long remained the most unsophisticated among the five recognized nuclear states, and arguably, it has been relatively vulnerable. Until very recently, the backbone of China's arsenal has been a small force of approximately 20 DF-5 Intercontinental Ballistic Missiles (ICBM).²⁴ The DF-5 is silo based, liquid fueled, and believed to be kept on low or no alert status with warheads detached and stored separately (Norris & Kristensen 2008, p.43). The DF-5 was deployed in 1981, with no major modifications being made since that time, and has been claimed to be relatively vulnerable to a first nuclear strike, or a high-precision conventional strike – indeed, its silos have been described by Chinese nuclear engineers as “missile tombs”. (John Lewis & D. Hua 1992, pp.24-25; see also Jeffrey G Lewis 2007, p.32). Other missiles have shared many of the same vulnerabilities, and are unable to reach the targets in the continental

23 Estimates of the number of Chinese nuclear warheads vary, and experts admit that it is “exceedingly difficult” to produce good projections (Norris & Kristensen 2008, p.44). The Chinese have traditionally been very secretive about the number of warheads and missiles in its inventory, as the relatively small arsenal makes it harder to maintain a second strike capability, and keeping its adversaries guessing might be one way to keep them from being able to track all its weapons (Nødskov 2010, p.232).

24 The abbreviation “DF”, used for most of China's ballistic missiles, means “Eastern Wind” (Dong Feng). Throughout this text, the Chinese, and not the NATO designation for China's missiles is used.

Table 3.1: China's nuclear forces, January 2010

Type/Chinese designation (NATO designation)	No. deployed	Year first deployed	Range (km) ^a	Warhead loading	No. of warheads
<u>Land-based missiles^b</u>	134				134
DF-3A (CSS-2)	12	1971	3 100 ^c	1 x 3.3 Mt	12
DF-4 (CSS-3)	12	1980	5500	1 x 3.3 Mt	12
DF-5A (CSS-4)	20	1981	13 000	1 x 4–5 Mt	20
DF-21 (CSS-5)	60	1991	2 100 ^d	1 x 200–300 kt	60
DF-31 (CSS-10 Mod 1)	~15	2006	>7200	1 x . .	15
DF-31A (CSS-10 Mod 2)	~15	2007	>11 200	1 x . .	15
<u>SLBMs</u>	(36)				(36)
JL-1 (CSS-N-3)	(12)	1986	>1 770	1 x 200–300 kt	(12)
JL-2 (CSS-NX-14)	(24)	(2010)	>7200	1 x . .	(24)
<u>Aircraft^e</u>	>20				(40)
H-6 (B-6)	20	1965	3 100	1 x bomb	(20)
Attack (. .)	..	1972-..	..	1 x bomb	(20)
<u>Cruise missiles</u>	150–350				..
DH-10	150–350	2007	>1500	1 x ^f
Total					(~200)^g

. . = not available or not applicable; () = uncertain figure; SLBM = submarine-launched ballistic missile.

^a Aircraft range is for illustrative purposes only; actual mission range will vary.

^b China defines missile ranges as short-range, <1000 km; medium-range, 1000–3000 km; long-range, 3000–8000 km; and intercontinental range, >8000 km.

^c The range of the DF-3A may be greater than is normally reported.

^d The DF-21A (CSS-5 Mod 2) variant is believed to have a range of up to 2500 km.

^e Figures for aircraft are for nuclear-configured versions only.

^f The DH-10, which is also known by the Chinese designation CJ-10, may have a nuclear role. It is apparently employable from H-6 bombers and ground-based launchers.

^g Additional warheads are thought to be in storage to arm future DF-31, DF-31A and JL-2 missiles. The total stockpile is believed to comprise c. 240–300 warheads.

Reproduced from SIPRI 2010 yearbook (Kile et.al 2010, p. 354).

United States.²⁵

China has never developed a fully operational nuclear triad, as it has remained strongly reliant on land-based systems (Fravel & Medeiros 2010, p.54; Gill & Medeiros 2000, p.536). The Chinese strategic bomber force is very vulnerable, and is supposedly not a real threat against any adversary with modern air defense systems. Furthermore, China does not seem to prioritize improving its capabilities in this area (Yuan 2007, p.293). In terms of its nuclear-powered ballistic missile submarine (SSBN) force,²⁶ this has been under development since 1958, but has encountered numerous technical setbacks and a very slow development rate. Until recently, Beijing possessed only a single Xia-class SSBN, which became operational in 1988, and has supposedly rarely left port and never conducted a deterrent patrol (Kristensen et al. 2006, p.79; Yuan 2007, p.292).

As its nuclear force has remained small, unsophisticated and relatively vulnerable, it is also striking how slow Chinese modernization efforts have been, and how long development of new systems have taken. For instance, even though it has long been aware of the weaknesses of the DF-5, it has taken China more than two decades to develop a new generation of road-mobile, solid-propellant ICBMs. The development of the second generation SSBN has taken equally long, and China has supposedly encountered serious technological problems in the process (Yuan 2007, p.293). Even though the new SSBNs have now been launched, the missile system of the submarine is still supposedly encountering difficulties, “failing several of what should have been the final round of flight tests” (Office of the Secretary of Defense 2010, p.34).²⁷ Growing wealth does seem to have improved modernization efforts: Writing at the turn of the century, Zhen Huang claimed that the speed of modernization from 1985 to the present was actually “*slower* compared to that in the

25 For a thorough treatment of the development of China's missile program, see (John Lewis & D. Hua 1992). Although there is some disagreement on this issue, most analysts believe that all missiles are equipped with a single warhead, even though China has long had the technical capability to develop and deploy a multiple independent re-entry vehicle system (MIRV) for many years (Kristensen et al. 2006, p.54).

26 SSBN is an acronym for Submersible Ship Ballistic Nuclear.

27 There is also disagreement about whether the Jin-class submarines can truly function as deterrence weapon vis-a-vis the United States, or whether it is too vulnerable to US Anti Submarine Warfare, and thus mainly a weapon for regional use. See (Erickson & Chase 2009b; Kristensen 2010).

Table 3.2: World nuclear forces, January 2010

Country ^a	Deployed warheads ^b	Other warheads ^c	Total
United States	2 468	~7 100 ^d	~9 600
Russia	4 630	7 300 ^e	~12 000
United Kingdom	160	65	225
France	300	..	300
China	..	200 ^f	240
India	..	60–80 ^g	60-80
Pakistan	..	70–90 ^g	70-90
Israel	..	80 ^g	80
Total	~7 560	~14 900	~22 600

^a North Korea conducted nuclear test explosions in 2006 and 2009, but there is no public information to verify that it has operational nuclear weapons.

^b ‘Deployed’ means on missiles or bases with operational forces.

^c These are warheads in reserve, awaiting dismantlement or that require some preparation (e.g. assembly or loading on launchers) before they become fully operationally available.

^d This figure includes 2600 in reserve in the US Department of Defense stockpile (for a total stockpile of c. 5100 warheads). A further 3500–4500 are scheduled to be dismantled by 2022.

^e This figure includes warheads in reserve or awaiting dismantlement.

^f China’s warheads are not thought to be deployed on launchers.

^g The stockpiles of India, Pakistan and Israel are thought to be only partly deployed.

Reproduced from SIPRI 2010 yearbook (Kile et.al 2010, p. 334).

previous decades” (2001, p.44).

The special nature of China’s nuclear forces become readily apparent when compared to the US and Russia. Even after significant cuts in the post-Cold War era, the US has declared that it keeps 5113 nuclear in its stockpile, as well as “several thousand” retired warheads awaiting to be dismantled (Reuters 2010). Russia is believed to have more than 4600 warheads operationally deployed, and to have more

than 7000 warheads either in storage, retired, or waiting to be dismantled (Kile et al. 2010, p.334). By the estimate of one scholar, as of 1999, when comparing strategic warhead totals, “the United States force is 375 times larger than China’s” (Godwin 1999, p.261). Even though numerical parity might not be relevant in the nuclear realm, the superiority of the US and Russian forces has been so overwhelming that many Western analysts believe the PRC has not had a reliable second-strike capability. Supposedly, it is only with the recent introduction of its new, road-mobile ICBMs (the DF-31 and the DF-31A), as well the long-range JL-2 SLBM missiles on the new Jin-class SSBN that China is finally “on the verge of achieving a credible nuclear deterrent based on a survivable second-strike capability”(Erickson & Chase 2009a; see also Lieber & Press 2006, pp.7-8; Saunders & Yuan 2006, p.84).

Finally, it should be noted how the pace and scope of Chinese nuclear modernization has been an odds with Western expectations. For instance, US intelligence analysts concerns about the pace and scope of Chinese nuclear modernization have for several decades generally been strongly exaggerated, as they have “grossly overstated, sometimes by several hundred percent” the size of the Chinese arsenal, and strongly exaggerated time lines for when new strategic systems would become operational (Kristensen et al. 2006, pp.3-4).

3.2 The origins of China's willful restraint

What is the reason for the slow modernization efforts and the limited size of the Chinese arsenal? Why has not China sought to develop a larger and more credible nuclear deterrent? First, it is important to point out that at least since around the beginning of the 1980s, it has not mainly been the result of technical or financial constraints, but largely a matter of choice for China's leaders. Even though a major buildup would be a strenuous effort, China has long had the ability to step up both its production of missiles and warheads, perhaps by up to a thousand short-range and medium-range missiles in a decade, and 10-12 ICBMs a year (Roberts et al. 2000, p.57); see also (Sun 2006; Johnston 1996b, p.548). While resource constraints perhaps left China with no other option than developing a minimalist nuclear force during the

Maoist age (Gill & Mulvenon 1999; Goldstein 2000; for a Chinese analyst indicating the same, see H. Hua 1998, p.61), China's leaders since the initiation of the reforms have therefore had the choice to develop a larger and perhaps also more advanced arsenal.

The recognition that Beijing could have built a much larger nuclear force if it wanted to has led many analysts to argue that the reason behind its policies is found in Chinese leaders views of the special nature of nuclear weapons, and an enduring strategic rationale guiding its policies. According to many scholars in both the US and China, the PRC's leadership adheres to a strategy of "minimum deterrence", which also guides nuclear development and deployment (Chu & Rong 2009; Zhen 2001; Roberts et al. 2000).²⁸ Although this concept is somewhat elusive, it has been defined as "Threatening the lowest level of damage necessary to prevent attack, with the fewest number of nuclear weapons possible" (Committee on the U.S.-Chinese Glossary of Nuclear Security Terms 2008, p.36). With such a strategy, a small number of warheads that can inflict "unacceptable damage" to a handful of enemy urban-industrial centers constitutes a credible deterrent (Zhen 2001, pp.40-41).

In recent years, the thesis of Chinese nuclear minimalism has had a strong proponent in Jeffrey Lewis, who has given it a thorough theoretical foundation.²⁹ Based on an assessment of deployment patterns and official statements, he claims four main principles that have guided China's nuclear deployment since it first crossed the

28 The minimum-deterrence concept has been debated, and not all scholars agree that it captures the essence of China's nuclear strategy. For instance, there are scholars that criticize the use of the concepts as they claim that deterrence has a qualitative, rather than quantitative connotation for Chinese strategists, and that Beijing's goal is "sufficiency that guarantees a survivable, credible, and effective second-strike capability" (Yuan 2007, p.284). Other scholars, for many of the same reasons, prefer the term "assured retaliation" to minimum deterrence (Fravel & Medeiros 2010). These debates have also been noticed by, and is discussed among Chinese scholars, with some supporting the minimum-deterrence argument, whereas others disagree, as they believe the term is a largely Western concept, and does not fully cover the unique aspects of China's strategy, such as its policy of no-first-use. Still, they mostly offer rather related arguments to why China has kept the size of its arsenal limited. See (B. Li 2006, p.422; Sun 2006, p.422; Rong & Hong 2009; Shen 2005, p.422; Zhu 2005a)

While these debates are important, it should be pointed out that the minimum deterrence-thesis has had wide currency, and that most of the critics agree with the notion that Chinese leaders generally do not believe deterrence is much affected by arsenal size, and that continuity has characterized Beijing's nuclear strategy.

29 Throughout his book, Lewis does not use the notion "minimum deterrence" about Chinese nuclear strategy. However, in a subsequent essay entitled "Minimum Deterrence", he notes that Chinese policy is "firmly grounded" in this minimalist conception (Jeffrey Lewis 2008).

nuclear threshold, namely that Chinese nuclear forces are *defensive, limited, effective and safe*.³⁰ Supposedly, it is because its government adheres to these principles, that the Chinese arsenal is “strikingly different from that of other nuclear states”, (Jeffrey G Lewis 2007, p.76). Lewis further holds that all these principles are consistent with “the core notion that the deterrent effect of nuclear weapons is largely insensitive to changes in the size, configuration, and readiness of nuclear forces” (2007, p.76) Many Chinese scholars largely support this view, which is also rather consistent with Chinese recent official rhetoric in the state's white papers on nuclear weapons, which underscores that China pursues only a “limited development of nuclear weapons, and aims at building a lean and effective nuclear force capable of meeting national security needs”(Information Office of the State Council 2006; see also B. Li 2006; Sun 2006; Shen 2008; Rong & Hong 2009; Zhu 2005a).

The thesis of China's continual minimalist nuclear strategy offers a powerful explanation of why China has kept its arsenal small. It also offers a convincing account of some of the peculiarities of China's nuclear doctrine, especially its policy of no-first-use (NFU), which it proclaimed already when it joined the nuclear club in 1964. Despite this, there are still some developments in China's nuclear force structure it leaves unexplained, and which seems inconsistent with the notion of an enduring strategic rationale. Most notably, for a state that believes that deterrence does not depend on size, configuration and readiness of the nuclear forces, one should assume that the size of its arsenal, as well as the investments in nuclear forces, would be relatively constant. However, after the initiation of the reform program in 1978, there have been some major fluctuations in Chinese nuclear policies. Especially, from the late 1970s to at least the beginning of the 1990s, spending on nuclear weapons was also allowed to atrophy. Also, while the size of the nuclear arsenal kept growing steadily until 1984, between 1984 and 1994, total force levels were more than halved, from 150 missiles to less than 70.

30 Jeffrey Lewis believes the pledge of no-first-use, that China articulated after its very first test, as well as the lack of deployment of tactical weapons, show that the Chinese nuclear weapons are retaliatory and *defensive*; Second, the subsequent lack of deployment of larger forces substantiate the claim that they are *limited*; Third, Chinese leaders concern with survivability show that they are supposed to be *effective*; Fourth, operational practices that sacrifice readiness in order to keep the central leadership in control demonstrate that they were supposed to be *safe*. See (Jeffrey G Lewis 2007, pp.75-81).

The following section will describe these events in more detail, and point to some possible explanations for the change in nuclear preferences in the post-Mao period. It argues that while the thesis of Chinese nuclear minimalism clearly holds merit, a framework focusing on the importance of changes in the regime's economic orientations might contribute to explaining the de-emphasis on nuclear weapons happening in the 1980s, which the minimalist thesis leaves largely unaccounted for. Furthermore, it might also provide additional insight into why China has kept its nuclear policies restrained, pointing to some important incentives for further nuclear restraint that followed in the wake of the economic reform program.

3.3 The de-emphasis of nuclear weapons in the reform era

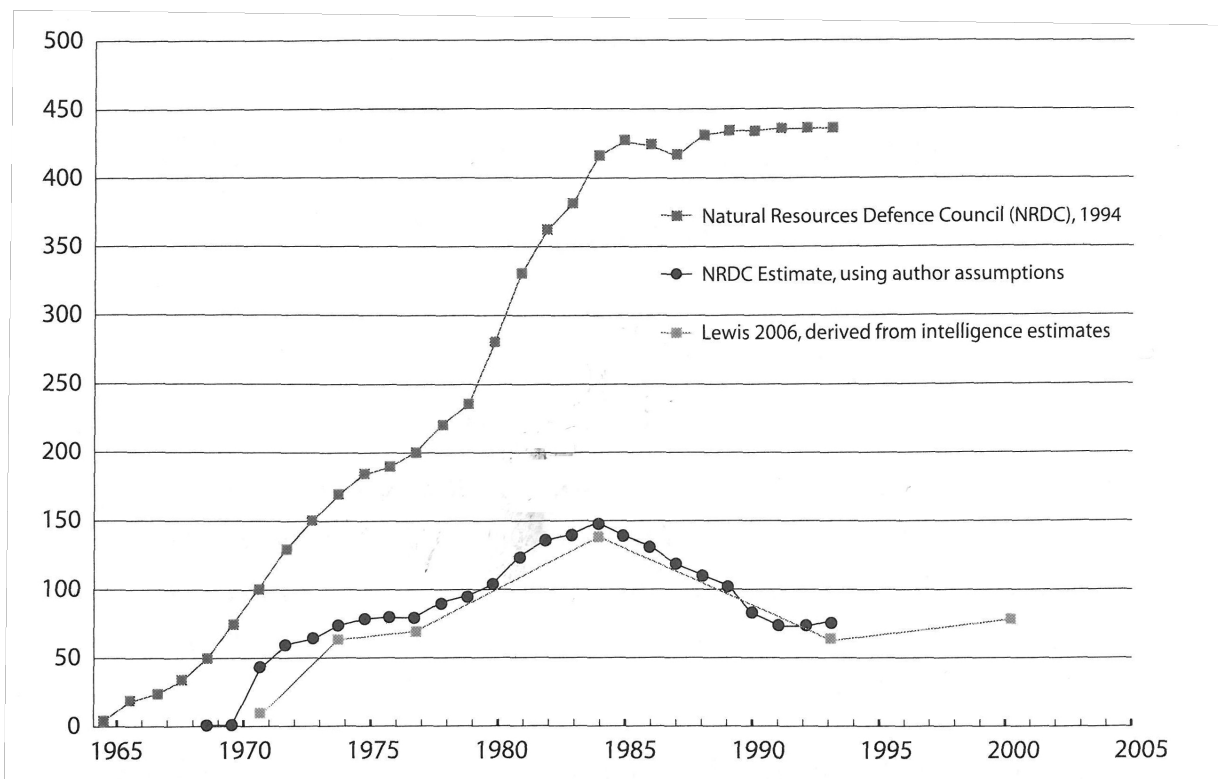
During the Maoist era, nuclear weapons development had a high priority, but as pointed out, because of resource constraints, China was probably left with no choice but to develop a relatively small nuclear force.³¹ This does not necessarily mean that China would have built a larger nuclear force if given a chance – indeed, from Chinese statements in this period, scholars John Lewis and Xue Litai have derived that “small, but better” remained one of the central principles in this period, and argue that Mao sought to develop a limited but reliable force (1994, p.232). While this might be true, it should still be stressed that until Mao's death, the strategic weapons program was still surrounded with intense ambition, with China trying to develop very advanced systems of delivery (for instance, a SSBN capability³²) despite its limited resources. Added up, the expenses of developing a nuclear weapons force were so massive that the strategic programs dominated Chinese industrial policy for decades (John Lewis & Xue 2006, p.4; see also John Lewis & Xue 1991; see also John Lewis & Xue 1994; John Lewis & D. Hua 1992; Feigenbaum 2003).

With the initiation of the reforms, this picture was to change. Starting from the 1980s, China's leaders was finally given a real possibility of increasing the quality and

31 Some analysts disagree that resource constraint might have given China's no option but to build a small arsenal, and believe that if its view of deterrence had been different, it would have been possible to allocate money differently, and build a larger force (Fravel & Medeiros 2010, pp.74-75).

32 SSBNs are highly complex, and even the United States did not have an operational SSBN capability before the USS George Washington went into service in January 1959 (Federation of American Scientists n.d.). That China started its research already in 1958, underscores the ambition of the program.

Figure 3.1: Different estimates of China's deployed nuclear forces, 1965-2005



This is a comparison made by Jeffrey Lewis between his own estimates and those of the National Resources Defense Council (NRDC). Lewis points out that the NRDC estimates includes systems that were “very likely never deployed” (2007: 54). These include SLBMs, tactical nuclear weapons, and gravity bombs. Removing these weapons from the estimate makes sense, as including for instance the JL-1 SLBMs that were placed on an SSBN that was never fully operational does not give an accurate picture of China’s actual forces. The NRDC estimates have also later been shown to be inflated: Between 2005 and 2006, the NRDC reduced their estimate of the number of Chinese nuclear weapons by 200 (Norris and Kristensen 2006, p. 66). For these reasons, the two bottom graphs arguably provide a more precise picture of the development of China’s nuclear forces. The “NRDC estimate, using author assumptions” includes only the DF-2, DF-3, DF-4, DF-5, and the DF-21. These were the most important deployed systems.

Reproduced from Jeffrey G. Lewis (2007, p. 54).

quantity of its arsenal by a larger margin because of the improvements in China’s economy. What is puzzling, however, is that China did exactly the opposite: From the late 1970s, it did not just keep its nuclear spending and arsenal size relatively constant – as the minimalist thesis would predict – it also initiated drastic cuts in the budgets of the strategic programs, and let force levels decrease significantly.

The budget cuts were initiated already from the very onset of the reforms. According to Lewis and Xue, starting in 1978, “the military had to endure the axing of

what most in the Second Artillery³³ command deemed essential personnel and funds,” which further led to building capability “in practice” being put on hold (2006, p.180). While some of the personnel cuts might certainly have been due to the Second Artillery's ranks being bloated, the cuts in budgets had a marked impact, with financial constraints during the first half of the 1980s being “severe” (Feigenbaum 2003, p.97). The situation does not seem to have improved during the latter half of the decade, with the strategic programs and the military industry suffering “severe budget cuts and neglect” (John Lewis & Xue 2006, p.209). In 1994, China was estimated to spend as little as 3 to 5 percent of its total military budgets on nuclear weapons, and according to Feigenbaum, “Given the reduced status of nuclear weapons and their delivery systems during the 1980s, this proportion of strategic weapons in the military budget was, no doubt, lower in the years between the SLBM test of 1982 and the overall post-1990 budget increases.” (2003, p.97). Several of the respondents interviewed also believed this picture to be correct, and that there were probably cuts in nuclear spending during the 1980s (Informant B; Informant C; Informant K).³⁴

How did the budget cuts affect China's nuclear deployments? In terms of ballistic missiles, the 1980s started with a series of breakthroughs for the Chinese. By 1981, China had finally developed a ICBM force, as the DF-5 and the DF-4 at last became operational after years of research and development, and initial deployment began. By 1984, 2 DF-5s and 8 DF-4s were deployed, thus for the first time giving the Chinese the ability to reach the continental US with their missiles. What is remarkable, however, was how slowly the further deployment process progressed. By 1994, the total number of ICBMs had grown to a mere 17, far less than what US intelligence analysts had expected (Jeffrey G Lewis 2007, pp.69-70). In addition, a modified version of the DF-3 entered into the inventory in 1986, but as the Chinese scrapped a number of the old ones, the total number of these missiles now amounted to less than fifty. Also, the older DF-2 was finally decommissioned, and the deployment of the

33 The Second Artillery (di er paobing budui), often referred to as the Second Artillery Corps, controls China's conventional and nuclear missile force. The Second Artillery is under the direct command of the Central Military Commission. For an introduction to its institutional history and basic features, see (John Lewis & Xue 2006, pp.173-209)

34 As everything but the most aggravated defense budget is secret in China, however, they could not confirm this, however. Even if they knew, revealing this kind of information would have been illegal.

new, solid-propellant DF-21A remained slow. In total, total force levels sank from almost 150 missiles in 1984 to less than seventy in 1994 (Jeffrey G Lewis 2007, pp.69-70). This decrease in the total number of deployed weapons is striking, and is one important indication of a clear de-emphasis of nuclear weapons in this period.

The budgetary situation also seems to have affected the research on the Chinese SSBN program. By the 1980s, the first Chinese Xia-class SSBN was finally completed, but from the very onset, both the submarine and its associated missile system was fraught with problems. Reportedly, this led to the Chinese leadership slowing investments in these programs since 1985 (Jeffrey G Lewis 2007, p.70). Supposedly because of Deng's wish to curb defense spending "and to shift the priority to civilian modernization", the construction of a follow-on SSBN system, the 09-3, was first delayed and then indefinitely suspended. (John Lewis & Xue 1994, pp.120-121). Instead, the Chinese focused on the much more modern missile submarine, the 09-4, but the development of this new system took more than two decades, with deployment starting only in the late 2000s.

While the evidence here is more flimsy, the budget cuts also seems to have had an effect on Chinese nuclear weapons research and the development of new systems in other areas. It is noteworthy how the research and development on a solid-propellant ICBMs³⁵ system started in the 1980s, but how it would take more than two decades before initial deployment began. There are some indications that this might be due to lack of priority: Supposedly, during the early 1980s, the Central Military Commission (CMC) wanted their main assignments – ICBMs, SLBMs and an operational communications satellite – to be finished, but then lowered the priority of further strategic weapons development (Feigenbaum 2003, p.79). This might explain why the later systems were seriously delayed. Some analysts have speculated that they have been "underfunded", but there is no data available to assess whether or not this is the case (Jeffrey G Lewis 2005). Obviously, technical problems might have played an important role as well, and it is very difficult to evaluate to what extent slow development is mainly due to such problems, insufficient funding, or both. Still, it

35 The development of solid-propellant missiles was not just relevant for China's ICBM force; the second-generation SLBM (the JL-2) is the sea-based version of the same system.

seems likely that deployment would have been faster, and technical problems overcome sooner, if China had been willing to put a larger part of its growing wealth aside for developing these missiles.

A further point indicating Chinese de-emphasis of nuclear weapons, is the reduced testing activity especially in the latter half of the the decade. Between 1985 and 1991, China tested four times, far less than its average testing record. According to interview data, this was as least partly due to the reduced budgetary allocations, and the de-emphasis on nuclear weapons in this period (Informant M). The reduced testing activity probably also reflects the reduced emphasis on development of new strategic weapons system, as nuclear testing is an integral part of the development of new warheads.

Finally, it is important to note that the de-emphasis of strategic weapons happened in a period when the Chinese arsenal was still relatively vulnerable, and its survivability “highly questionable”(Fravel & Medeiros 2010, p.53). In this period, and also during the 1990s, several Western analysts have pointed out that China's strategic missiles had “a relatively low ability to survive an adversary's disarming first strike” (Saunders & Yuan 2006, p.84), see also (Lieber & Press 2006, pp.7-8). Throughout the period, China continued to try to increase the survivability of its arsenal, for instance by building fake silos and trying to keep its adversaries guessing about the total number of missiles in its arsenal (Saunders & Yuan 2006, p.84). However, it is remarkable that the Chinese have not felt an even greater urgency in trying to decrease their arsenal's vulnerability, for instance by speeding up the development of new systems and by deploying a larger number of missiles.

3.3.1 Why did China deemphasize nuclear weapons?

What is the reason behind this de-emphasis on nuclear weapons during the 1980s? First, it is important to realize that the developments should be seen against a wider backdrop, with China's priorities changing in a number of areas. With the initiation of the “reform and opening” (gaige kaifang) in 1978, both China's domestic and foreign policies shifted course, as Deng made economic progress the overarching priority, and

opened the once isolated country to the outside world. The reforms brought revolutionary changes to Chinese society, and marked a fundamental break with the autarkic and militaristic model of political survival of the past. Even though it happened gradually, (or rather, in fits and starts) from 1978, the model of political survival of the Chinese regime has increasingly been approximating the “internationalizing” one outlined in chapter 2.

The basic outset for the reforms of 1978 was the need to develop the Chinese civilian economy, which had been shaken to its core at several periods under the erratic policies of Mao Zedong. Reversing the policy of central economic planning of the past, and breaking with Maoist principles, Deng started China's transition towards becoming a market economy by announcing great changes in agricultural policies, that were later succeeded by experimental reforms in almost all sectors of the economy (Naughton 2007, p.88). By seeking to enter into international markets, stressing improved consumption, shifting towards a more diversified industrial strategy, and focusing less on inland development and more on advanced coastal regions, China sought to improve its weak economic base. Later, this was to turn China into an export-led growth economy which attracted ever-growing flows of foreign direct investments (Naughton 1994, pp.50-57).

The reorientation of Chinese foreign policy that started at the same time, might largely be said to be a result of the desire for domestic economic development, or at least being a closely integrated part of the same strategy. In order for the reforms to succeed, Deng viewed a peaceful international environment as essential. As they sought to develop the economy and take part in international markets, China's leaders thus left the rejection of the international system and the bombastic language of the Maoist period, and instead favored engagement with the international community. As part of this engagement, they sought to improve China's bilateral relations with most of the outside world, and especially Western countries, that it depended on for both investments and technology transfers. Importantly, this process led to a speed up of the process of normalization of the ties with the US, that had begun already with president Nixon's diplomatic initiatives. Furthermore, China also became a more eager

participant in international intergovernmental and nongovernmental organizations, especially financial ones (Medeiros & Fravel 2003, p.24).³⁶ While it integrated more and more into international society, however, China still sought to focus mainly on domestic concerns and to avoid any international controversy. During the first post-reform decade and beyond, Chinese foreign policy was largely guided by a fundamental dictum from Deng Xiaoping, saying that China should “keep a low profile and never take the lead” (Finkelstein 2000, p.2).

The reform program launched by Deng was not uncontroversial internally, as there were many conservative constituents who favored much less radical changes, especially in the central bureaucracy. In an interesting account about how this opposition was overcome, Susan Shirk (1993) has argued that Deng built a political coalition consisting of provincial officials who were to gain from reforms, successfully pushing the program through despite the resistance from the central bureaucracy, and without having to change the basic rules of the political system. Furthermore, as Harry Harding (1987, p.93) has put forth, the cyclical patterns of the reforms in the 1980s was partially a result of differences of opinion within the reform coalition, as some reformers were more cautious than others. Still, even given the controversy, by the mid-1990s the Chinese had “moved away from the command economy, and adopted a functioning market economy” (Naughton 2007, p.85).

The initiation of the economic reforms can be seen not only as part of a strategy to develop the Chinese state, but also as a plan to keep the Communist Party in power, as they were not matched with any major political reforms. With Maoist politics left ideologically bankrupt after the the chaos of the Cultural Revolution, the regime needed a new source of legitimacy. Especially after the Tiananmen crisis of 1989, when the Chinese regime was rocked to its core, it has been obvious that legitimacy is closely tied to sustained economic growth, as well as appealing to national sentiments. (Shirk 2007, p.68). As Susan Shirk has convincingly argued, in post-Tiananmen climate, the main perceived threats to the CCP has not been external forces, but rather

36 For another excellent analysis of China's increasing willingness to cooperate with international institutions, and how China came from being an underinvolved to an “overinvolved” state in such international organizations by its level over development after the 1980s, see (Johnston 2003).

internal ones, as “The worst nightmare of China’s leaders is a nationalist protest movement of discontented groups – unemployed workers, hard-pressed farmers, and students – united against the regime by the shared fervor of nationalism” (2007, p.7). In addition, as David Shambaugh (2008) has pointed out, the collapse of the Soviet communist regime also made the CCP convinced that it needed economic modernization and to engage with international society to survive. In the soul-searching debate on how to avoid the Soviet fate, the central conclusion the CCP reached was supposedly that “a certain recipe for collapse is an ossified party-state that has a dogmatic ideology, entrenched elites, dormant party organization, and a stagnant economy and that is isolated from the international community” (Shambaugh 2008, p.4).

3.3.2 The Chinese economy demilitarizes

How do these broad trends relate to the de-emphasis of China’s nuclear weapons program? Here, it should be pointed out that for the reform program to succeed, the reformers also believed it necessary to initiate a major demilitarization effort. Of the so-called “four modernizations”, the areas Deng had highlighted as essential if China were to take its rightful place as a great power, military modernization was ranked last, after the modernization of agriculture, industry, and science and technology (Godwin 1997, p.252). The People’s Liberation Army (PLA) was told to be patient, as the number one focus was on the civilian economy. Over the course of the 1980s, military budgets declined in real terms, and a large portion of the former military industry was converted into civilian functions (Crane et al. 2005, p.108). In the mid-1980s, despite significant protests from conservative groups that were largely linked to the PLA, a large-scale demobilization plan was also initiated, which included a 25 percent cut in PLA ranks (Cheung 1988, p.757). As the economy in general grew significantly in this period, these cuts in military budgets were quite remarkable.

The cuts in PLA budgets and force levels, and also in nuclear force levels, can partly be seen as the result of changes in threat perceptions among the top Chinese leadership in the 1980s. Whereas Mao Zedong prepared for “an early war, an all-out war and a nuclear war”, Deng Xiaoping in 1982 reached a completely different

strategic conclusion. Deng claimed the trend of time was peace of development, chances for world war and nuclear conflict between the superpowers were slight, and that China could enjoy a stable international environment for at least a couple of decades. By 1985, this led to a transformation of the military strategy, as the PLA was directed not to prepare for major war, but rather for “local, limited wars on China’s borders” (Godwin 1997, p.252). These changes in threat perception were an important reason why a reduced focus on the military was possible.

However, while changing threat perceptions were no doubt central, it should be pointed out that spending on nuclear weapons started to decrease already in the late 1970s, in other words several years before Deng had reevaluated the possibility for major war. During this period, the Soviet invasion of Afghanistan, Soviet support for the Vietnamese invasion of Cambodia, as well as support for Vietnam in the border war against China, were all seen as threatening in China. In addition, the Soviet refusal to remove vast military forces from the contested border also contributed to keeping the relationship tense (Gelman 1982; DIA 1984). From 1979, China called for a united anti-Soviet front, and it was only in 1982 tensions started to decrease somewhat (Mills 1986, p.545). In addition, US-Soviet relations were worsening, leading to a large-scale Soviet nuclear buildup that were to last until the coming to power of Gorbachev in 1985. Thus, while China’s security climate was indeed much more relaxed from the mid-80s, China still faced a very challenging external security climate in the late 1970s and early 1980s.

In addition, the cuts were also closely connected to changing domestic economic priorities. During the mid-1980s, despite resistance from conservatives, the reformist faction of the party successfully argued that economic development was more important for the defense of the country than the military component, because allocating too much resources to the military could lead to disastrous consequences for national security. (Cheung 1988, p.764). As domestic economic development became the number one priority in this period, reducing the burden of the military on central government budgets was deemed as essential if the reforms were to succeed. Deng told the military to wait “at least 20 years”, as developing the economy was given priority

over all other matters (Finkelstein 2000, p.9; Gill 2007, p.3).

Thus, rather than just being the result of changing perceptions of threats, it might be argued that the cuts in both the military budgets in general and the strategic programs in particular happened because the Chinese leaders and the domestic coalition supporting them started thinking about national power in a very different way than in the past. Whereas Mao Zedong famously declared that “political power grows out of the barrel of a gun”, since the early 1980s, China has instead been focusing on increasing its “comprehensive national power”, where economic power is seen as a crucial aspect (Pillsbury 2000, p.211).³⁷ Growing economic muscles and changing domestic economic priorities were therefore not just a simple byproduct enabled by changing perception of threat, but rather the perhaps most central part of the reformers' plan to increase China's international standing and influence, and arguably also of a central part of the strategy of keeping the CCP in power. Some have dubbed this a change in grand strategy – according to Swaine and Tellis, in the reform area, China's grand strategy has been characterized by “the acquisition of comprehensive national power deriving from a continued reform of the economy without the impediments and distractions of security competition”.(2000, p.112). However, it could also be seen as a change in model for domestic political survival, where economic growth has been the central underpinning for keeping the party in power.

For this reason, the Chinese de-emphasis of the strategic weapons in this period should be seen partly as the result of changing threat perceptions, but mainly as a result of a shift in thinking about the relationship between national security, economic development and military power. Like the atrophy in military budgets more generally, it was part of a broader strategic calculation, where China's leaders deemed economic reforms to be the main priority, and put military modernization on the back burner. If the reforms were to succeed, Beijing believed it needed to divert its resources from the

³⁷ “Comprehensive national power” (zonghe guoli) is an important term in Chinese strategic vocabulary. Wanting to forecast the future power hierarchy in world politics, Chinese researchers have established a way of trying to measure the comprehensive national power of different states, where a number of indicators are included, such as territory, natural resources, military force, economic power, social conditions, domestic government, foreign policy, and international influence. While military power is seen as important, economic power is essential and the most crucial aspect for any state. The term was coined in the 1980s, but its intellectual origins is said to lie in classical Chinese strategic thought, such as Sun Zi, where military prowess is regarded as only one element of power that might be used to defeat one's opponents. For an excellent introduction to the term, see (Pillsbury 2000, pp.201-258).

military sector into the civilian one.

3.3.3 Nuclear weapons become a burden

In addition to this broad trend, the de-emphasis of nuclear weapons in the 1980s was also the result of some more specific factors. During the late 1970s, the “balance of power” in the wrangling over budgets between the conventional forces and the nuclear programs changed, with conventional weapons modernization being seen as increasingly important by the central leadership. In December 1977, the CMC and the State Council decided to make conventional weapons the main focus of China's future weapons procurement (Feigenbaum 2003, p.79; see also H. Hua 1998, p.63). China increasingly came to see local conflicts in for instance the South China Sea, territorial disputes with India or Vietnam, as well as naval and air attacks on its coastal cities as potential threats, especially as some of these threats could disrupt the economic modernization program (Lampton 2002, p.72). The border war with Vietnam in 1979 made the dire state of Chinese conventional forces and their inability to conduct war beyond its borders clear (Cheung 1988, p.773). This might have given the proponents of focusing more on such weaponry a stronger hand.

In addition, and probably even more importantly, during this period, there was a drastic change in the thinking about the relationship between nuclear weapons and economic development more specifically. During the 1960s and 1970s, Chinese leaders actually saw an ambitious strategic program and the development of advanced nuclear weapons technology as something that could be beneficial for the Chinese economy more broadly. However, from the initiation of the reform program, the thinking about the role of strategic weapons technology in the economic development strategy of the state changed fundamentally, with nuclear weapons now being seen as a burden rather than a potential asset.

The somewhat peculiar view that a large and ambitious strategic weapons program could benefit the national economy, was the result of a intense internal debate happening during the late 1950s and early 1960s, when the decision to go nuclear had been made, but the program had yet to bear fruit. Especially from 1962, with economic

conditions being harsh in the aftermath of the Great Leap Forward (1958-1961), a coalition of civilian constituents and military leaders from conventional branches of the PLA argued that the ambitious strategic weapons program was too expensive, and that it should either be downsized or scrapped altogether. Instead of spending China's scarce resources on strategic weapons, the coalition argued, money should be spent on developing the civilian economy, and on China's ailing conventional forces (Feigenbaum 2003, p.27); see also (John Lewis & Xue 1991, pp.127-129; John Lewis & Xue 1994, p.28).

In order to shield the strategic programs from this criticism, the father of the Chinese strategic weapons program, marshal Nie Rongzhen, developed a counter-argument that pointed to links between nuclear weapons and economic development. Nie claimed there was no conflict between development of advanced weaponry and building the economic base: In fact, weaponization would lead to a "spin-off" that would also benefit the civilian economy. The argument rested on the assumption that strategic programs would not only increase firepower, but could also promote development of technology in a broader way that "impinged on industrial competitiveness, international standing, and economic power" (Feigenbaum 2003, p.29). Supposedly, these arguments won over chairman Mao, and also provided a future guide for the Chinese view of the relationship between technology and economic development.

This development strategy guided China's priorities and legitimized heavy spending on the strategic programs throughout Mao's rule, but over the course of the 1980s, Marshall Nie's strategy came to be seen as having "bought China a minimum strategic deterrent, but little else" (Feigenbaum 2003, p.72). The belief in a spill-over effect started to break down from the very outset of the reforms, and by 1986, the strategy formulated and promoted by Nie was rendered "completely anachronistic" (Feigenbaum 2003, p.73), see also (John Lewis & Xue 1994, pp.150-151). Nuclear weapons development thus increasingly came to be viewed as an expense that could derail its program of economic reforms, instead of as an a potential asset that could also promote economic development. This fundamental reversal in thinking is an

important reason why nuclear weapons were deemphasized, and strategic weapons development no longer had the same status as during the Maoist period.

The view that the strategic weapons programs might be a burden on national budgets, rather than an asset for the economic development of a state now seems to be widely recognized in China.³⁸ Seemingly, this belief got even stronger with the collapse of the Soviet Union, which came as a shock to China's leaders, and led to a soul-searching debate about how CCP could avoid the destiny of the Soviet communist regime. One idea shared by many of the participants in this debate was that bloated military budgets and the arms race with the US had been an important factor in the Soviet downfall (Shambaugh 2008, pp.76-77). Chinese arms control experts interviewed also pointed to this link and how it had influenced Chinese thinking, arguing that arms racing in the end had decreased, and not increased the security of the Soviet Union (Informant E).³⁹

In sum, then, the Chinese de-emphasis of nuclear weapons in the 1980s clearly seems to largely have been a consequence of the changes in the winning coalition's preferred model for domestic political survival. With building the civilian economy being deemed as the essential task, and joining the global economy being the means to achieve this, the strategic programs and military modernization more generally had to be given lower priority: China's limited economic resources were needed elsewhere. Also, unlike the Maoist era, strategic weapons programs came to be seen as a financial

38 Among the experts interviewed, one arms controller pointed to a very radical explanation of why China deemphasized nuclear weapons. The expert argued that the reforms of the 1980s was a major breaking point: As there were not only no immediate external threats facing China, and internal problems such as poverty, underdevelopment and internal disorder came to the fore as the greatest challenges to CCP rule, he claimed there was a major rethinking about nuclear weapons and the CCP's strategy for securing the party's survival. *If* China's nuclear program has remained restrained after the 1980s, he believed the main reason to be that China did not have the resources to increase its number of nuclear weapons and modernize the economy at the same time. Economic development, he believed, was "a tool" for party control, and in this process of strengthening party rule, nuclear weapons played no important role. "To handle Chinese people, you do not need to build many nuclear weapons" [...] You need to build to build armed police. The 1989 student demonstrations indicated this" (Informant B).

39 In fact, such arguments have also been heard in connection with the US development of a Ballistic Missile Defense-system (BMD), as some Chinese scholars and PLA officers believe the BMD plans are part of a scheme to trick China into entering an arms race, and "collapse without a battle" (Pillsbury 2000, p.xlvi) In fact, in a rare display of heated, direct debate between Chinese international relations scholars, professor Shi Yinhong argued that China should not put too much emphasis on BMD developments to avoid falling in the US "trap". Shi's argument was strongly rebuked by professor Zhang Ruizhang, who argued that his reasoning was faulty, and that China had to respond. See (Shi 2000; Zhang 2002).

burden that drained state budgets. For these reasons, despite the crude nature of China's deterrent, further development of strategic weapons was deemphasized by the Chinese leadership.

3.4 Changes and continuity in the 1990s and beyond

While the reform efforts, and a change in the thinking about the relationship between security and economic development had a marked effect on Chinese nuclear priorities throughout the 1980s, to what extent did this change in thinking prove lasting?

In fact, there were some developments from the early 1990s that weakened the disincentives described in the former section. Especially, from the early to mid-1990s, after years of astonishing economic growth, China's leaders deemed that it could start to increase its spending on the military. In 1993, the growth in Chinese defense budgets significantly outpaced inflation for the first time since the reforms were initiated, and from 1996, double-digit increases took hold (Crane et al. 2005, p.108). For this reason, while China judged it necessary to curb defense costs during the 1980s, which also had an effect on the funding for the strategic programs, this factor was significantly weakened from the early to mid-1990s.

In addition, during the 1990s, China's second-strike capability and the credibility of its deterrent was increasingly being debated internally (Informant C). According to Medeiros, the Chinese thinking appeared to "coalesce around the notion that China needed to move towards a credible and visible minimum deterrent that relies on the mobility, invulnerability, and penetrability of its nuclear forces as the foundation for possessing a survivable nuclear force" (2007a, p.54). The growing doubts among Chinese strategists about the credibility of their arsenal seems to have been at least partially a result of external developments. Especially, the first Gulf War in 1991 left the Chinese worried about the PLA's backwardness (Stokes 1999, p.12). Some of the respondents also pointed to how Chinese leaders became increasingly concerned about the survivability of its nuclear forces, as the US ability to attack fixed targets with pin-point accuracy became vividly clear (Informant O). Not surprisingly, this reinforced Chinese leaders belief in the importance of having a road-mobile ICBM

capability (Manning et al. 2000, p.27).

In sum, it seems like increasing economic strength, coupled with an increasing doubt of the credibility of their own arsenal, led to something of a growing emphasis on nuclear weapons. To a certain degree, this tendency can be seen in Chinese development and deployment patterns, with the total number of deployed missiles starting to increase slightly since the mid-1990s. Most notably, the number of deployed ICBMs increased, with “less than 25” DF-5 missiles deployed in 1998, according to US intelligence estimates (National Air Intelligence Center 1998). Efforts to decrease the vulnerability of the force supposedly continued, with a major tunnel network for enhancing survivability under the condition of nuclear attack being completed in 1995 (Jeffrey G Lewis 2007, p.33). Also, research on a road-mobile ICBMs continued, as did the research on the next-generation SSBN.

However, while these developments were not unimportant, it is still striking how, despite China's growing wealth and increasing military budgets, there were still no major changes in its posture in this period. The increase in the total number of deployed missiles, as well as in the number of ICBMs, was much smaller than US intelligence agencies predicted, and arguably cannot be said to have marked a significant change in Chinese nuclear posture. In addition, while the modernization efforts gained some steam, neither the DF-31 nor the next generation of Chinese SSBNs were completed before well into the 2000s, despite having been underway for years.

What makes these developments especially striking, is the fact that there seems to have been forces internally arguing in favor of a policy shift and a nuclear expansion in this period. In an oft-quoted article, Alastair Iain Johnston (1995) has shown how there was a debate within army circles from the late 1980s about whether or not China's strategic doctrine should shift from one of “minimum deterrence” to one of “limited deterrence”, with many strategists being in favor of such a reorientation. Such a doctrine focuses on war-fighting and counter force capabilities “to deter conventional, theater, and strategic nuclear war, and to control and suppress escalation during a nuclear war”, which would require “a sufficient range of weapons

and operational capabilities, essentially, to respond to any level of attack” (Johnston 1996b, p.555). It would thus require a relatively large-scale quantitative build-up, a more aggressive configuration of the nuclear force, as well as qualitative improvements in many areas, for instance better command, control, communications, and intelligence (C³I) capabilities. Based on his reading of Chinese documents, Johnston (1995) found few military sources being directly opposed to such a doctrinal change.⁴⁰ Supposedly, had the PLA, and the Second Artillery especially had more clout internally, the result could perhaps have been different, with China adopting this more aggressive nuclear strategy (Johnston, quoted in Fravel & Medeiros 2010, p.78). Obviously then, something and someone must have held China back.

3.4.1 Factors constraining China

What is the reason for behind China's continued nuclear restraint? First, as already pointed out, unlike the 1980s, Beijing's nuclear restraint cannot to the same degree be related to an economic rationale, and the de-emphasis of the military in general. While China during the 1980s clearly tried to divert resources away from the military and towards the civilian economy, this was not equally true in 1990s, when military budgets grew significantly. With this growth in the defense budgets, China clearly could have spent more on a nuclear buildup. Instead, it decided to spend most of its defense budgets elsewhere, for instance on improving the quality of its navy and its air force.

Clearly, that China's leaders wanted to spend most of its defense budgets elsewhere, indicates that the lack of a more marked buildup was the result of a strategic calculation. This points to the relevance of the thesis of Chinese nuclear minimalism: It appears like China leaders have indeed believed that deterrence is relatively insensitive to changes in the size and configuration of nuclear weapons, and that a major nuclear buildup is simply unnecessary. If China's leaders had wanted it

40 Chinese analysts have tried to downplay Johnston's findings, arguing that the analysts arguing in favor of a “limited deterrence”-doctrine are not people of major influence, and that views are not representative of the PLA (see for instance H. Hua 1998, p.64). While it is very hard to assess this, it should be kept in mind that the Chinese analysts might have a clear agenda for saying this, as they might want to smooth over disagreement internally about something as fundamental as nuclear strategy. In addition, the supposed willingness to build a larger nuclear force perhaps made China come across as more aggressive.

different, they would have had the ability to build a larger force.

However, while the thesis of Chinese nuclear minimalism certainly provides important explanatory power, it is not certain that this is sufficient for explaining China's nuclear posture in the 1990s and 2000s alone. As pointed out, there seems to have been disagreement internally on whether or not to keep a minimalist nuclear force, with some influential constituents within the PLA arguing for a nuclear build-up. That China's leaders were willing to overrule their opinion indicates that there might have been additional factors that also constrained China, and that are relevant for explaining why China's leaders decided to opt for continued nuclear restraint.

Especially, perceived political and reputational costs seems to have been an important additional constraining factor. Both Chinese and Western experts have pointed to this, arguing that a nuclear expansion could be politically damaging for Beijing. For instance, Saunders and Yuan (2006, p.103) have claimed that a major buildup might harm China's international image, and potentially raise strategic tension both in its region and globally. Similarly, Chinese scholar Zhu Mingquan has argued that most experts in China are against a major buildup, as it could severely damage the Sino-US nuclear balance and "please only the forces in the US opposing China" (2005b, p.212). Some other analysts have also pointed especially to the importance of not causing alarm in Washington, where China's growing power have at times been regarded with suspicion. In the words of Zhen Huang, trying to avoid "undue US strategic concerns over China may have served as an added factor causing the delay of China's strategic force modernization and its insignificant expansion (2001, p.48)."

China's growing sensitivity to its international image, and the importance attached to relations with the United States, is directly related to Chinese reform policies. For the reforms to succeed, China also needs sound political relations with a number of states and institutions, especially Western ones. In the words of Swaine and Tellis, the Chinese reform efforts, and the nature of the US-led post-war economic regime "makes continued Chinese acquisition of economic and technological power hostage to the goodwill of Western regimes, markets, and suppliers (2000, p.103)." Relations with the United States are of particular importance, a fact Chinese leaders

might sometimes be reluctant to admit, but that is still openly recognized by Chinese experts (see, for instance (Gong 2004).

Also, even though China's overall defense spending has increased, it seems like the more direct economic incentives to constrain nuclear weapons modernization are still in place. In recent years, a number of Chinese analysts have pointed out how it might be harmful for the economic reform program to develop a large number of nuclear weapons. For instance, Gu Dexin and Nie Yongjun claim that China's national strategy "demands that it focuses on developing the national economy", and that "it cannot possibly spend more resources on developing nuclear weapons" (1999, p.275). Zuo Yunhua, a former senior diplomat and army officer closely involved in Chinese arms-control decision-making, notes how the US-Soviet arms races have convinced the Chinese to "further deemphasize the need to upgrade their nuclear weapons" because of the high costs involved. Furthermore, she claimed that China's defense buildup has been "steadily subordinated to national economic development" (Zou 1998, p.7). Also professor Zhu Mingquan has noted that a nuclear buildup could "severely harm the Chinese economic development" (2005b, p.212). In sum then, the Chinese continued nuclear restraint and modest modernization efforts in the 1990s and 2000s seems to be informed not only by its nuclear strategy, but probably also by the regime's "internationalist" model of political survival. As China's leaders still deemed keeping China's reform efforts on track, and its economy growing, to be their overarching task, they might be reluctant to put to much emphasis on nuclear modernization.

3.5 Conclusion

This chapter has sought to address an important puzzle, namely the reason why China has not sought to develop a larger, more diverse and more credible nuclear arsenal. It argues that the thesis of Chinese nuclear minimalism, and its leaders view that a small arsenal is enough to deter any adversary, provides a powerful explanation for why China's nuclear modernization efforts have remained slow. However, this thesis cannot fully explain a second puzzle, namely the major fluctuations in nuclear policies

during the 1980s, when spending on nuclear weapons were allowed to atrophy, and the total number of deployed weapons in the Chinese arsenal was more than halved. Arguably, these developments should be seen as the result of how the economic reforms caused China's leaders to deemphasize military modernization, and decrease the overall defense budgets. In addition, unlike the Maoist period, Chinese leaders no longer believed the development of advanced nuclear weapons technology could contribute to economic growth, but rather started to regard the strategic program as an economic burden. In sum, the initiation of the economic reforms thus seems to have had an important effect on China's nuclear preferences in the decade after their initiation, leading to a major de-emphasis of nuclear weapons.

In addition, the chapter argues that Chinese views of the special nature of nuclear weapons, and the sufficiency of a relatively small arsenal is an important reason why China kept its nuclear forces small also in the 1990s and 2000s, despite overall defense budgets growing significantly. However, it also argues that the economic reform policies have continued to be another important disincentive for an expansion of China's nuclear arsenal, as such an expansion is not only seen by many as unnecessary, but also as expensive and potentially harmful for China's reform efforts. A major nuclear expansion could potentially damage China's international image, and cause friction with important trading partners. Thus, the economic reforms and the opening of the Chinese economy have given Beijing a further incentive to keep its nuclear posture restrained. It is admittedly difficult, however, to evaluate the relative weight of such factors, and to what extent China's nuclear policies would have been markedly different if it were not for political and economic disincentives.

How does this analysis of the development of China's nuclear force structure compare with the analytical frameworks outlined in chapter 2? Some of the developments described in this chapter appear to be consistent with a neorealist rationale, especially developments in the 1990s, when China seems to have been increasingly aware of the vulnerability of its arsenal, and moving to decrease this. However, the fact that Beijing arguably did not develop a secure second-strike capability throughout the 1990s, but still kept modernization efforts modest throughout

the period, is at odds with neorealists' conception of a rational nuclear restraint. Furthermore, the strong de-emphasis of the strategic programs happening in the 1980s, and the atrophy in spending on the strategic program in this period is particularly ill-explained by neorealist logic, as a wealthier China should have been expected to do the opposite, and strengthen its vulnerable nuclear arsenal. In fact, in a realist analysis of China's nuclear programs, Avery Goldstein has made this point explicitly: Arguing that resource constraints forced China to develop only a rudimentary nuclear arsenal, Goldstein claims this was only a "stopgap until the day arrived when China's scientific and economic resources would permit a more ambitious modernization program" (2000, p.124). He has further argued that "throughout the final decades of the Cold War (and after), China's determination to invest its scarce defense modernization resources in establishing the viability of nuclear deterrent did not wane (Goldstein 2000, p.119)". The evidence outlined above suggests otherwise.

Even though it can clearly not explain all aspects of the evolution of China's nuclear force structure, a framework focusing on the importance of models of political survival and their related economic development policy, on the other hand, fares better. As the model predicts, adopting an internationalizing model led the Chinese reformers to seek to control nuclear expenditures, especially in the decade after the initiation of the reforms, when diverting money from the military sector towards the civilian one was seen as especially important. As pointed out, while changing threat perceptions played a certain role in these changes, the budget cuts for the strategic forces started before China's external security climate had improved substantially. In addition, internationalization also seems to have continued to play a potentially constraining role. China knew that a nuclear buildup could potentially harm its political relations with key trading partners, especially the US. However, this effect is not as unequivocal and easily observable as the effect of seeking to curb expenditures in the 1980s.

In sum then, while not being able to explain all the developments outlined in this chapter by itself, Solingen's framework provides potentially important insight into the rationale behind China's restrained nuclear posture. This indicates that domestic

political models, and willingness to join the global economy might influence not just nuclear aspirants, but also the postures of full-blown nuclear states.

4 China and the Nuclear Nonproliferation Treaty

As a part of the change in its nuclear priorities, China has increasingly recognized the international norms of non-proliferation, and accepted nonproliferation regimes and institutions. These changes have their roots in the early 1980s, but a sea change came in 1992, when China joined the Nuclear Nonproliferation Treaty (NPT), the cornerstone of the international nonproliferation regime.

The Chinese decision to accede to the treaty is important for three major reasons. First, as a key international player and a nuclear weapons state, the PRC's accession to the regime clearly strengthens its legitimacy, and took the NPT one big step closer to universal recognition. Second, before joining, Chinese spread of nuclear weapons technology, like its proliferation to Pakistan, would not be illegal, even if it was politically controversial. By joining the NPT, China agreed to be legally obligated not to spread nuclear weapons to other countries. Third, as Wendy Frieman has noted, China's role in nuclear nonproliferation, including the NPT, "has become emblematic of its acceptance – or non-acceptance – into the international community". (2004, p.7). As the NPT is a regime that enjoys wide support, by joining it, China indicated its willingness to integrate in the society of states. Given these points, it is well worth analyzing the reasons behind China's NPT accession, both as a case of its own, but also to understand the driving forces behind its changing nuclear priorities more generally.

This chapter will first describe the main features of the NPT, the obligations its signatories agree to accept, as well as the PRC's attitude towards the treaty during the Maoist years. The chapter then points to how this attitude started to change as Deng Xiaoping initiated his path-breaking reforms, but how there were still important areas of Chinese noncompliance with international nonproliferation norms during the 1980s. It analyzes why China's record in this period was mixed, and how there were simultaneously enabling and constraining factors influencing nuclear policy. It then discusses in more detail the process of China joining the NPT in 1992, and the factors influencing this policy change. In the final section, it argues that in a broader context,

the decision can be seen as a direct result of the changes happening after the initiation of the Chinese reforms, and the process of the PRC integrating into international society. This section also provides an analysis of how the different theoretical frameworks presented in chapter 2 fare when trying to explain the process leading to China joining the treaty.

4.1 Background: The Nuclear Nonproliferation Treaty and its impact on China

Before discussing China and its decision to join the NPT, it is important to outline the main features of the treaty, and the constraints it puts on its signatories. The treaty was negotiated in 1968, and came into force in 1970. Today, NPT enjoys near-universal acceptance, with the notable exceptions of India, Pakistan, and Israel, as well as North Korea, which withdrew from the treaty and claims to no longer be bound by its regulations.

The NPT is based on three main pillars: (1) nonproliferation; (2) disarmament; (3) the right to peacefully use nuclear technology. In practice, the main constraints of the treaty are placed on non-nuclear weapons states (NNWS), who under article II agree not to develop nor acquire nuclear weapons, and under article III agree to place their nuclear activities under safeguards by the International Atomic Energy Agency. The treaty not only locks the NNWS into nonnuclear weapons status, but also compels them to comply with an intrusive inspection regime to monitor their compliance.

By comparison, the demands put on the nuclear weapons states are fewer in number and less rigorous. Under article I, they are prohibited from exporting nuclear weapons or helping non-nuclear weapons states developing them. However, unlike the NNWS, their compliance with this obligation is not subject to a system of enforcement, as their nuclear installations are not required to be safeguarded. Because of concerns of an unbalanced treaty from many non-nuclear weapons states, an article was also added to the treaty about the responsibility of the NWS to:

pursue negotiations in good faith on effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control (NPT 1968).

However, the article does not call for a time line for this disarmament, nor does it present any concrete requirements for how disarmament should take place. In addition, it should be noted that the treaty “does not pose any specific constraints on the development of nuclear weapons for states that already possessed them in 1967” (Frieman 2004, p.13). Except for the commitment to cease the arms race “at an early date”, the NWS are not, at least by a narrow reading of the treaty, constrained from expanding the size of their arsenals. For these reasons, the treaty has on numerous occasions been accused of being unfair, and many NNWS claim that the NWS have not upheld their part of the bargain, as there has been limited progress in promoting complete disarmament.

4.1.1 1968-1981: China resists the NPT

China is recognized as a legal nuclear power by the NPT, as it demonstrated its nuclear weapons capability before the “deadline” of 1967. Despite this fact, it long remained severely critical about the treaty, and about nonproliferation efforts in general. During its early years, the PRC was actively in favor of proliferation, as long as those that developed nuclear weapons were “peace-loving nations”, and especially socialist countries. In 1961, three years before China tested its first weapon, Premier Zhou Enlai remarked, “If all countries have nuclear weapons, the possibility of nuclear wars would decrease” (quoted in Zhu 1997, p.41). In 1963, the Chinese government stated that “It depends on whose hands they have been put into whether nuclear weapons are beneficial to the peace; ‘no’ in the hands of imperialist countries but ‘yes’ in the hands of socialist countries” (quoted in Zhu 1997, p.43).

For this reason, when the NPT was opened for signature in 1968, it is was perhaps no surprise that China chose to remain outside of the treaty, denouncing its “hypocrisy” and “discrimination”. The treaty was viewed as a tool for the superpowers to consolidate their own power, and to limit the power of developing world states in particular, many of which also criticized the assumptions of the treaty. As late as in 1978, the year China initiated its reforms, the official rhetoric still remained very hostile: In a statement to the United Nations, the Chinese government labeled the NPT a “conspiracy concocted by the USSR and the US to maintain their nuclear

monopoly"(quoted in S. Li 2001, p.60). In 1979, Deng Xiaoping repeated the harsh criticism, and even though he did not actively encourage proliferation, like his predecessors, the Chinese leader continued to be unwilling to oppose it (Medeiros 2007b, p.36).

Even though they strongly criticized the NPT, in official rhetoric, Beijing claimed not to be a proliferating state. The Chinese government stressed that it was in favor of the complete abolition of nuclear weapons, and that it did not encourage proliferation, being opposed to supplying nuclear weapons and the material needed for their manufacture to other countries. During interviews, some respondents stressed that this was more than empty government rhetoric. For instance, it was mentioned how Egypt approached China in the late 1960s, and Libya approached China in the 1970s in their quest for nuclear weapons, but that China refused to provide both President Nasser and Colonel Gaddafi, respectively, with any direct assistance related to nuclear weapons (Informant D).

However, even though they claimed China to have observed the norm of nonproliferation, the respondents admit that before the reform period, nonproliferation was not a big concern for the PRC's leaders, and that the spread of nuclear weapons was not seen as having any major impact on security (Informant G; Informant L). In addition, there is evidence suggesting that the Chinese proliferation record has been far from perfect. First, China reportedly supported the North Koreans in developing nuclear technology in the 1950s and 1960s, even though Mao supposedly refused to assist Pyongyang in developing a nuclear weapons capability (Clemens 2010; NTI 2004). In addition, during the 1980s, China exported sensitive nuclear materials and technology to a number of states. Most importantly, China provided crucial assistance to the Pakistani nuclear weapons program. The next section, which focuses on the changes happening in Chinese nonproliferation policies during the 1980s, will outline especially the Chinese-Pakistani nuclear cooperation in more detail.

4.2 1981-1991: Gradual changes in China's nonproliferation policies

A few years into its reforms, China's view of nonproliferation and the NPT gradually started to change. In a working paper submitted to the Conference on Disarmament (CD) in 1981 (China joined the CD in 1980), the Chinese government still criticized the monopolization of nuclear weapons by major powers, but stated that it did not "advocate or encourage nuclear proliferation" (CD/207 1981). In 1983, it made the first formal commitment to nuclear nonproliferation. It made three explicit pledges, namely that all of its exports would be for peaceful purposes, that no exports would be re-transferred to a third country without China's prior approval, and that all exports would be subject to IAEA safeguards" (Medeiros 2007b, p.51). This support for nonproliferation was later repeated by senior leaders, including Premier Zhao Ziyang. During a state dinner in the White House on January 10, 1984, Zhao stated, "We are critical of the discriminatory treaty on the non-proliferation of nuclear weapons, but we do not advocate or encourage nuclear proliferation. We do not engage in nuclear proliferation ourselves, nor do we help other countries develop nuclear weapons." (quoted in Jones 1998, p.57). Thus, even though they still criticized the NPT, Beijing started supporting the goals and objectives of the treaty. This marked a major departure from the policies of the Maoist period.

An important development in terms of Chinese compliance with international nonproliferation norms came with its 1983 decision to apply for membership in the IAEA. China had already started making inquiries about joining the agency in 1978. After having submitted its application in October 1983, the member states voted in favor of admitting China, and from January 1 1984, it formally became a member. Since 1984, China has claimed that all its nuclear exports will be subject to IAEA safeguards, and it has signed a number of agreements with the agency about its exports to various countries. In 1985, the Chinese delegation to the IAEA also declared that the government would willingly put some of its own nuclear installations under safeguards (P. Zhou 1985).

However, despite these positive developments, numerous concerns arose about

China's compliance with international nonproliferation norms. As noted above, while being less confrontational in its rhetoric, the Chinese government still criticized the NPT, and refused to join the treaty. Also, during the course of the 1980s, China exported nuclear materials, equipment and technology to a number of states which potentially could contribute to development of both nuclear, biological, and chemical weapons. These included exports to states suspected of having covert nuclear programs, such as Argentina, Brazil, South Africa, and India, and were not put under IAEA safeguards (Jones 1998, p.50). What is striking, is that some of these exports seemed to run counter to Chinese foreign policy goals. For instance, sales to South Africa were not consistent with China's critical attitude towards the apartheid regime, and more importantly, sales of heavy water to India, a country China regarded as a strategic competitor, was a very puzzling event from a foreign policy perspective.

Beyond these unsafeguarded exports, the greatest concern among Western states in this period was the Chinese nuclear relationship with Pakistan. It is now widely believed that Chinese assistance was crucially important in the development of the Pakistani bomb (see for instance Albright 2010, pp.29-51). The possibility of such a relationship had long been suspected: According to a recently declassified cable from the US Embassy in China to the State Department, already in 1982, US diplomats were asking Chinese officials about whether or not they assisted the Pakistani nuclear efforts, but reported that the Chinese "refused to give us an unequivocal answer" (US Embassy in China 1982). In recent years, more and more information about the Chinese-Pakistani nuclear cooperation has emerged, and most credible open-source reporting states that China gave Pakistan what it needed for assembling a nuclear device, including bomb designs, technical assistance, and possibly weapons-grade materials. In 2009, the Pakistani scientist and nuclear mass-proliferator Abdul Qadeer Khan asserted that China in 1982 provided Pakistan with enough weapons-grade uranium to assemble two atomic bombs. The uranium was supposedly part of a "broad-ranging, secret nuclear deal approved years earlier by Mao Zedong and Prime Minister Zulfikar Ali Bhutto" (Washington Post 2009; see also Albright 2010, pp.47-50). Khan also claimed that the uranium shipment included a blueprint for a simple nuclear device already tested by China. It is suspected that Khan handed these designs

over to Iran, and it has been confirmed by Libya that Chinese nuclear designs were bought through Dr. Khan's clandestine network (Washington Post 2004; Washington Post 2009). As Dr. Khan and his network also provided nuclear assistance to North Korea, and offered their services to Iraq, the Chinese assistance to Pakistan became part of a much larger network of nuclear proliferation (Albright 2010).

In sum, the Chinese policies during the 1980s tell a complex story, and its non-proliferation record in this period was mixed. On one hand, it made remarkable strides towards accepting international nonproliferation efforts, as both rhetoric and policies changed significantly. On the other hand, as the PRC leadership still refused to join the NPT, exported unsafeguarded nuclear materials and technology, and purposely helped the Pakistani nuclear program, there were still important areas of noncompliance left.

The reasons for the Chinese mixed record are complex, as there were simultaneously both enabling and constraining factors influencing its policy. These factors will be outlined below, and their relative importance in determining Chinese nonproliferation policy will be evaluated.

4.2.1 Factors enabling Chinese nonproliferation efforts in the 1980s

That Chinese nonproliferation policies generally came more in line with international norms than before can largely be seen as the result of the economic reforms initiated during the late 1970s. As will be outlined in more detail, the reforms had both a more narrow effects directly related to improving the Chinese economy, but also a broader effect, in terms of increasingly giving China political incentives to comply with nonproliferation norms.

First, in terms of the more direct effects, the reforms gave China a clear rationale for cooperating with other countries to build a civilian nuclear industry, which also put demands on its nonproliferation policies. Building this industry and strengthening China's energy supplies was deemed to be essential for the economic reforms to succeed: In the early 1980s, energy shortages hampered the the implementation of development policies, supposedly causing many industries to

operate at reduced capacity. To avoid such problems and to bolster its energy supplies, developing nuclear energy was given “top priority” in the sixth and seventh Five Year-plans (1981-1985 and 1986-1990) (Tan 1989, pp.870-871). At this point, there was no civilian nuclear industry in China – all facilities had been built for supporting the strategic programs, as well as for research purposes (Frieman 2004, p.10). In order to build a civilian nuclear industry, and convert parts of its military nuclear industry to civilian purposes, China’s leaders decided that they needed foreign assistance.

Because of the US advanced capacity in civilian nuclear technology, the Chinese leadership sought a nuclear cooperation agreement (NCA) with the US, an agreement that would allow nuclear trade between the two countries. The deal, which was initialized in 1985 (but not fully implemented), was a top priority for the PRC, and gave the United States a strong negotiating position to make nonproliferation demands on China. According to Tan Qingshan (1989, p.870) it also had “immediate influence” on Chinese policies, and directly contributed to China’s growing willingness to accept nonproliferation norms. The major change in policy announced by Premier Zhao Ziyang mentioned previously, happened in the context of China seeking to finalize this agreement (Tan 1989, p.880).

China’s decision to join the IAEA was also a direct result of its efforts to develop a civilian nuclear industry (Informant A). This was due to the fact that, the United States required that IAEA membership be a prerequisite to US-China nuclear cooperation, but also China’s keenness to develop a civilian nuclear industry more generally. IAEA membership made nuclear cooperation with a number of countries easier for China, and also made it possible to receive technical assistance and training, as well as to influence the agency’s decisions (Frieman 2004, p.10). Informant A 2010 Furthermore, as the regime mainly focuses on safeguards for NNWS, it puts few concrete constraints on NWS. Joining the IAEA thus had a high pay-off, and relatively limited costs.

In addition to such narrow considerations, the reform program arguably also had a broader effect on nuclear policies. As mentioned in the previous chapter, for the reforms to succeed, the Chinese needed to improve their relations with a number of

countries, especially Western ones, and a stable international climate. Some of the respondents interviewed pointed out that because of the international support of nonproliferation norms, and the concern in the international society with such issues, China could not afford to be seen as an obstacle to this norm (Informant A also; Informant E; Informant F; Informant G). This was probably an important reason why the PRC's leaders changed their policies. Furthermore, continuing to use the same harsh rhetoric about nonproliferation as in the past would have been inconsistent with the most important guideline in Deng's foreign policy, namely keeping a low international profile, avoiding controversy, and focusing on the economy.

For these reasons, the first hints of the process of China signing the NPT began already in the early- to mid-1980s. According to several respondents, there were already discussions about the treaty within arms control- and academic circles at this stage, and they gained momentum especially after China joined the IAEA in 1984. Some of the participants in these discussions favored China joining the NPT (Informant D; Informant G; Informant L). However, the process took time, and it was still to take several years before China took the final step.

4.2.2 Constraining factors in the 1980s

Even though the PRC generally became more cooperative in its nonproliferation policies, there were also important areas of noncompliance left in this period. This was because there were important constraining factors at work, especially profit motives and a weak export control system, continual influence from conservative constituents, as well as Chinese interests in cooperating with Pakistan.

First, somewhat paradoxically, while promoting Chinese compliance with nuclear nonproliferation norms in the long run, the reform program also brought some negative changes. As noted in the previous chapter, a major part of the reform was to demilitarize the economy, which included converting former military industry like the nuclear one to civilian functions. As government subsidies fell sharply, the industry had to seek capital elsewhere, and thus had a strong incentive to export nuclear goods and services. At the same time, the Chinese regime for export control was very weak,

even largely non-existent. Nuclear enterprises could therefore sell their goods without much intervention, despite China's promise of putting their exports under IAEA safeguards (Medeiros 2007b, pp.9-10). In addition, arms control experts interviewed claim that the industry was largely controlled by so-called "princelings" (taizidang), that is, the children of higher officials, and that these powerful constituents wanted to export (Informant K). This hunt for profit and the weak controls explain why Chinese enterprises exported nuclear materials and technology also to countries like India, a country one would assume China would be skeptical about helping in its nuclear ambitions.

A second constraining factor was the influence of conservative constituents, and the wish to keep a consistent foreign policy. When asked why China did not join the NPT before 1992, despite the new thinking during the 1980s, many respondents said that it was a "learning process", and remarked how major policy changes take time (Informant A; Informant F; Informant L; Informant O). That such substantial shifts do not happen overnight, especially because they might encounter resistance internally, is plausible. Chinese opposition to the NPT had long remained strong, and as Medeiros (2007b, p.42) has argued, it would probably have been difficult for the leadership to ensure support for changing this position rapidly, especially as it was already undertaking other controversial policy shifts. Interview data confirm this: Supposedly, there was still significant opposition to China joining the NPT during the 1980s within some parts of the government, including the PLA. These conservative groups noted how China long had been opposed to the NPT and could not understand why China would change its position. Changing their views apparently took some time (Informant G).

Third, the Chinese interest in nuclear trade and cooperation with Pakistan continued to constrain its willingness to comply with nonproliferation norms. According to Medeiros, China's continuing assistance to Pakistan seems to have been due to three factors: Lack of experience with or low interest in nonproliferation; The mutually beneficial character of the relationship and Chinese possibilities of learning from Pakistan about enrichment technology; And geopolitical motives, especially

wanting to balance India, but also to limit Soviet regional influence (Medeiros 2007b, pp.51-52). This underscores how China had clearly not fully accepted the nonproliferation norm, and how it took time for changes to happen.

In sum then, while the major trend of the 1980s was that the economic reforms caused China to reevaluate the Maoist hostility to the NPT and change its nonproliferation policies, there were still factors constraining Chinese compliance. In some cases, most notably in the case of nuclear cooperation with Pakistan, these constraining factors could still prove stronger than the enabling ones, such as the wish to improve relations with especially the US by changing its nonproliferation policies.

However, over time, the factors pressing for wider Chinese compliance with international nonproliferation norms proved to be stronger than the constraining ones. During the course of the 1990s, its willingness to observe international nonproliferation norms improved, as did its willingness to join international nonproliferation regimes. The 1991 decision to join the NPT marks a milestone. The next section will describe the process leading to China joining this regime, and discuss why it happened at the point it did, as well as the more fundamental underlying causes leading to this decision.

4.3 1991: China decides to join the NPT

Even though it is hard to find evidence of the exact nature of the internal policy-making, interview data, Chinese sources, as well as the relatively scarce existing literature in the field makes it possible to outline the broad process leading to China acceding to the NPT. According to several respondents, the first major debates in policy-making circles about China joining started in late 1980s, supposedly around 1987 (Informant A; Informant K; Informant L). Like with most debates about significant policy-shifts, it was kept internal, and the exact views held by different participants, are not known. However, it is still possible to discern some debate between government agencies. Several respondents mentioned the PLA as a skeptical force, but it is not given that all of the military was negative – according to one of the experts interviewed, the military critics of the NPT were often “military academics”

from institutions like the National Defense University that were not central in decision-making (Informant G; Informant L). As for forces in favor of joining the NPT, the Ministry of Foreign Affairs (MFA), which was generally often in favor of Chinese integration into the international system, is said to have been more positive (Informant G). In addition, as will be outlined in more detail below, the Ministry of Nuclear Energy seems to have played an important role in swaying the leadership towards a more positive view of the treaty.

During the end of the 1980s, it seems the forces in favor of China joining were gaining in strength, and in the early 1990s, it started to become evident for outside observers that Chinese policies towards the NPT were about to change. In 1990, China for the first time joined the NPT Review Conference as an observer, and described the treaty in favorable terms. In the summer of 1991, senior leader Li Peng and Foreign Minister Qian Qichen signaled that changes were about to happen, saying that even though “China has not yet decided whether or not to join the nuclear Nonproliferation Treaty”, it was continuing to study the question (quoted in Davis 1995, p.592).

The sea change came later in the summer of 1991. In August, just two months after France had announced that it intended to accede to the treaty, Li Peng stated that China «in principle» was ready to join (Davis 1995, p.592). Supposedly, despite the “rubber stamp” character of the Chinese National People’s Congress, for “reasons unknown”, the ratification of the treaty encountered some resistance (Frieman 2004, p.14). This underscores that the skepticism from conservative constituents were probably still at play. The resistance was quickly overcome, however, and in March 1992, China officially became a NPT member, five months before France, which thereby became the last legally recognized nuclear power to join.

4.3.1 The Reasons Behind the Chinese Decision

Why did China chose to join the NPT, and why did it happen in 1992? First of all, it is important to point out that the decision must be seen against the backdrop of one conclusion which was increasingly becoming recognized among the arms control community in China during this period – namely that joining had few costs, especially

as it had already made a number of proliferation pledges that resembled those in the treaty. In fact, while they disagreed about the relative importance of other factors, the respondents interviewed almost invariably supported this assessment, saying that joining the treaty had no significant political costs, and only relatively limited economic costs in terms of having to improve its system for export control, and curbing some of its nuclear exports to especially Pakistan (Informant A; Informant D; Informant F; Informant G; Informant H; Informant I; Informant K; Informant L). Also, as will be pointed out in more detail, these economic costs were probably offset by the economic gains of joining. One respondent claimed the treaty had “internal political costs” in terms of having to overcome conservative skeptics, but generally agreed that the NPT did not have any major cost in terms of external political relations or security (Informant G).

While important, the treaty being seen as largely cost-free does not in itself explain the decision to join. Based on the available data, it is also possible to outline some proximate causes, as well as some broader ones that enabled China to join the treaty. It is impossible to say exactly which were the final determinants of the outcome. However, that is not necessarily a problem: Most likely, the decision was not the result of one factor alone, but rather the result of a number of factors increasingly pointing in the same direction.

The main proximate event was the Tiananmen crisis. After a long period marked by steady improvements in its relations with a number of countries, especially the United States, China’s image throughout the Western world was tarnished in the aftermath of the bloody crackdown on protesters in June 1989. This led to a number of Western countries initiating boycotts on both arms sales and international exchanges, placing China in an isolated position. China’s leaders wanted to break out of this international isolation, and joining the NPT might be seen as part of these efforts. In fact, some Chinese scholars have agreed with this assessment in writing, and many of the interviewed experts also agreed that breaking out of its isolation was a consideration for the Chinese leadership (B. Zhou 2003 also; Informant A; Informant D; Informant F; Informant G; Informant H; Informant I). However, it is important to

note here that it seems like the Tiananmen crackdown probably did not affect the fundamental question of joining in itself, as this decision would have been made anyway. According to several respondents, the factors pushing for China joining had already long been at work, and the process was already in motion (Informant F; Informant G). That the Chinese seriously started discussing internally whether or not to join already in 1987, underscores that this might be the case.

Another proximate event was the French announcement of its decision to join the NPT in 1991. As France was the only other NWS not to have joined the treaty, China was about to become the only nuclear power on the outside of the regime. Many of the sources interviewed saw this as a cause that affected timing, but few believed it was a fundamental reason in itself (Informant D; Informant F; Informant G; Informant H; Informant I; Informant K; Informant L). Also here, it is important to note that the process leading to Chinese accession seems to have started several years before the French decision became known.

As for broader concerns leading to China signing the treaty, Sino-US relations seem to have played an indirect, but still important role. Even though there was not too much direct applied pressure from the US on China in this issue, and it would certainly would not have a “make or break”-effect on bilateral relations, Chinese leaders still knew that the US would look favorably upon NPT accession. It could contribute to easing the tense relationship between the two countries, which took heavy damage from the bloody crackdown on Tiananmen. The data support that improving relations with the US was a consideration: most of the experts interviewed agreed that this influenced the Chinese decision. However, many stressed that it was only one of many considerations, and not necessarily a decisive one (Informant A; Informant D; Informant F; Informant G; Informant H; Informant I; Informant K; Informant L). Also, in articles, Chinese scholars have said that improving its relations with “major powers” was a reason it joined the NPT. (B. Zhou & B. Li 2002, pp.25-26).⁴¹

In addition to generally improving relations with the US, Chinese leaders

41 In China, it is often controversial to indicate that decisions are influenced by Western, and especially US pressure. For this reason, Sino-US relations might be of greater importance than suggested by academic writings, or by private, anonymous interviews.

probably also calculated that signing the NPT would increase China's chances of having the nuclear cooperation agreement implemented. Specialists have differing opinions on the exact importance of the NPT in this regard, but it still seems likely that acceding to the treaty would smooth the way for the NCA (see Medeiros 2007b, p.73; see Frieman 2004, p.15 for two differing views). In aftermath of the Tiananmen crisis, there were many in the US Congress, who had to approve the deal, that harbored strongly negative opinions about China. By signing the NPT, the context of an NCA no doubt improved, even though it is hard to say how much of an impact this had (the deal was still not fully implemented before 1998), and how important this was in the Chinese rationale.

Also, image considerations, and growing support of the treaty internationally, seems to have played a very important role. Here, some of the experts interviewed pointed to the views of the developing world states, and how they were increasingly supportive (Informant A; Informant F; Informant G; Informant K). As noted, a major reason why China traditionally opposed the NPT, at least according to official rhetoric, was its discriminatory status for developing countries. However, during the course of the 1980s, an increasing number of developing countries joined the treaty, for instance Egypt (1980), Vietnam (1982), North Korea (1985), and Saudi Arabia (1988). This probably forced China to reconsider at least the rhetoric behind its opposition to the treaty, as upholding the role as champion of the developing states against the NPT became increasingly difficult.

It should be mentioned that some respondents did not believe that the views of developing countries was such an important factor (Informant H; Informant I; Informant L). However, even if it is not the case that China joined the NPT "to cater to developing countries" (Informant H), increasing participation and support from such countries was at least part of a bigger, emerging picture, where China was sensing that the NPT was looking more and more like a universally recognized treaty. Continuing to reject joining the NPT would have left China in an increasingly isolated position, and as part of the same club of NPT critics as India, Pakistan, Israel and formerly South Africa, some of which Beijing viewed as countries with a "bad reputation"

(Informant A). In addition, as Davis has argued, “Not only had this association equated China with lesser powers in a general sense, it linked Beijing with arch rival New Delhi as the main critics of the treaty” (1995, p.593). Being part of the NPT as a recognized nuclear power, on the other hand, would arguably provide China and its strategic weapons with a certain legitimacy, and would give China a voice inside the NPT. It would also bolster China’s image as a “responsible major power”, a point which several respondents also outlined as a consideration (Informant A; Informant F; Informant L). In sum, joining the NPT had important image benefits for China, while remaining on the outside had significant image costs.

Moreover, the decision to join was also the result of new thinking about the NPT, and major constituents increasingly becoming supportive. Here, China’s membership in the IAEA was very important, and marked a turning point in the process. By taking part in the organization, China learned about nuclear technology generally, as well as the possibilities of peaceful nuclear cooperation and the importance of nuclear security. Also, through its participation in the IAEA, the Chinese discovered how many developing countries were constructive participants in the organization, and that they also supported the NPT, despite being critical about some of its implications (Informant G). In addition, the Chinese government organ that mainly dealt with the IAEA at the time, the Ministry of Nuclear Energy (hegongyebu), increasingly became a force internally that was in favor of China joining the treaty (Informant G; Informant L). Supposedly, they were influential in the decision-making process, especially as their research on the technical implications of NPT membership was given weight (Informant G).

Finally, joining the NPT could also potentially wield economic benefits, as it widened China’s options when engaging in peaceful nuclear trade. At this point, some countries such as France were increasingly unwilling to sell nuclear technology to states outside the NPT, and by joining, China could overcome this obstacle (Davis 1995, p.592). Some of the respondents mentioned this economic logic as one concern for the Chinese leadership. They reckoned that the economic benefits of NPT membership by far offset the economic costs in terms of having to curb some exports

to especially Pakistan, and having to strengthen its export control regime (Informant F). The reasoning that NPT membership could be economically beneficial seems to have paid off. As Davis has argued, “The loosening of some U.S. controls on sensitive exports to China and new reactor deals with France, Canada, Japan, Russia, and South Korea in 1994 seem to confirm the utility of Beijing’s signing the NPT” (1995, p.592).

4.3.2 Less important concerns

In addition to these major concerns, there are some other factors that should be mentioned, but that arguably did not have the same impact. First, a changing perception of the danger posed by the spread of nuclear weapons, especially the potential for proliferation in Asia, is often mentioned as having played a role (Davis 1995, p.592; Medeiros 2007b, p.73). There might be some relevance in this: A few years before China joined the NPT, Colonel Zou Yunhua, a influential expert on arms control in the PLA, outlined the importance of the NPT in a security perspective. Even though the treaty had many flaws, she argued, “it is still the pillar of the nonproliferation regime, and has made certain contributions to international peace and security, and to international stability and trust.”(Zou 1990, p.28). The fact that Zou worked for the PLA, which had been generally skeptical about the NPT, makes these viewpoints especially interesting. Also, several of the respondents mentioned potentially positive security effects of the NPT for China, especially the fact that the treaty could hinder Japan, Taiwan and India from acquiring nuclear weapons (Informant A; Informant K). According to one arms control expert, Beijing hoped its accession would push India into joining (Informant F).

However, it should also be noted that several respondents failed to mention the threat posed by the spread of nuclear weapons as a reason for joining (Informant D; Informant H; Informant I). In fact, one senior expert stated explicitly that security concerns were not important. He believed that it was only later during the mid- to late-1990s, with concerns over North Korea’s nuclear program growing, and especially with the Indian and Pakistani tests in 1998, that China really started to care about proliferation on its borders (Informant G). The data here is therefore conflicting, and it is difficult to assess exactly how central security concerns really were in the decision-

making process.

One point still needs to be underscored: Even if China did start to view proliferation as a threat to its own security, Beijing joining the NPT or not would arguably not have made that much of an impact, and China could have enjoyed many of the security benefits while remaining on the outside of the regime. Even if China's membership strengthened the legitimacy of the regime, it is debatable whether China in the NPT would sway nuclear aspirants away from proliferation. In the case of North Korea, it clearly did not have this effect in the long run, and if trying to «shame» India into joining was a consideration, this also failed. This indicates that while it might very well have been a factor, security concerns were probably not a fundamental reason for China signing.

Another potential factor to be considered is the change in the nature of US-Soviet nuclear competition, with improvements in the arms control agenda during especially the latter half of the 1980s, and eventually the end of the Cold War. Evan Medeiros argues that this «created an environment that Chinese strategists felt was conducive to joining the NPT», and was «an especially important factor in the military's support for NPT membership» (2007b, p.72). He also quotes PLA arms control specialist colonel Zou, who claims that the reduced super-power rivalry reduced China's «principled» objections to joining (Medeiros 2007b, p.72). The principled objections Zou refers to, is most likely the «vertical» proliferation (increasing the size of their arsenal) of the superpowers, that China in official rhetoric regarded as equally bad as «horizontal» proliferation, and which made the Chinese regard the NPT as an unfair and unbalanced treaty.⁴² Even though they did not outline such a specific rationale, some of the respondents supported the notion that the end of the Cold War created a climate that made China look more favorably on NPT membership (Informant D; Informant H; Informant I).

However, it should also be noted that several respondents did not mention this factor at all during interviews (Informant A; Informant F; Informant K). One

⁴² Chinese analysts still continue to emphasize that «vertical» proliferation is often overlooked, and the responsibilities of the countries with the largest arsenals (i.e. the US and Russia) to stop this trend. See, for instance, (Pan 2006, p.7).

respondent even explicitly rejected that it had any influence: Since joining the NPT did not have any major impact on Chinese security, the respondent believed that there is no reason why changes in the external security environment should have an impact on its thinking about the treaty (Informant G). This is a valid point: When examining the possible relation between China's security climate and the NPT, it is a bit hard to see a clear causal linkage between the two. That superpower arms control might have reduced some of the "principled" objections to joining might be true, but at the same time, it seems somewhat unlikely that it had such major importance, as US and Soviet arsenals even during the very latest parts of the Cold War were still vastly bigger than China's. In sum, even though it is difficult to assess this factor, as the data is contradictory, it still seems unlikely that the end of the Cold War was of major influence at least from a strictly security-related point of view.

4.4 Conclusion: Chinese Reform Policies as a Common Denominator

If seen in a broader perspective, what can the Chinese decision to join the NPT tell us about the driving forces behind its nuclear policies in this period more generally? While the analysis above tries to outline and analyze the events leading to China signing the NPT, it is important to understand that this process should also be seen as part of a bigger picture, where China's reform program changed both its domestic and foreign policy goals in a fundamental way.

That the Chinese decision to join the NPT was part of this broad context, can be seen by examining the factors outlined above that worked in favor of China signing the NPT. Most of them are the direct result of, or have at least been reinforced by the Chinese reform efforts. As noted in the previous chapter, Chinese concern with improving its relations with the US largely stemmed from this logic, as this bilateral relationship was of great importance if reform efforts were to succeed. Similarly, the wish to avoid international isolation, and growing concern with its international image was also part of the same broad rationale, as were the economic incentives for joining the deal. With the exception of profit motives in the nuclear industry, the changes in

domestic and foreign priorities resulting from the reform program have generally promoted Chinese compliance with nonproliferation norms. The interview data confirm this: While disagreeing in several other respects, all of the respondents interviewed underscored how the reforms were the starting point for the change in Chinese nonproliferation policy and the process that led to China joining the NPT.

The notion that the Chinese decision to join the NPT was the result of such a broad trend is reinforced when examining Chinese subsequent proliferation behavior. After the decision to join the NPT, China has also joined other, more rigorous nonproliferation regimes, notably the Zangger Committee in 1997, and the Nuclear Suppliers Group in 2004. During this period, China is largely believed to have adhered to the obligations it has undertaken by joining these treaties.⁴³ Also, the Chinese have strengthened their institutional capacity for enforcement, as the export control system has been continuously improving (Shen 2008, p.641; Medeiros 2005). Even though there have been some controversial cases – for example, the sale of ring magnets to a Pakistani nuclear facility by a Chinese enterprise in 1996 was met with great suspicion in the US⁴⁴ – the Chinese nonproliferation record has continued to move in a positive direction. Even though this thesis will not analyze all these events in detail, the fact that this growing acceptance of nonproliferation norms and China's deepening integration into the global economy happened simultaneously, indicates that internationalization continued to shape Chinese policies. This assessment is also supported by other analysts (Gill 2007, pp.74-103).

What does this imply for the theoretical perspectives outlined in chapter 2? In terms of the realist framework, it arguably does not contribute with too much explanatory power in this case. A realist analysis would perhaps suggest that the change in nonproliferation policy reflect a change in distribution of power in favor of China, as well as China wanting to curb neighboring nuclear aspirants like India and North Korea from acquiring nuclear weapons. However, the findings of this study

43 The recent Chinese decision to sell two nuclear reactors to Pakistan might be an exception, but the exact implications of this deal, and its legal status, is still not clear. See (Hibbs 2010).

44 As the ring magnets were believed to be so-called dual-use items – that is, items that can be used both for peaceful and weapons-building purposes – it is ambiguous whether or not the sale constituted a breach of China's NPT obligations. Also, it seems like the Chinese government was unaware of the sale, and that it led to a greater recognition of the importance of strengthening its export control system. See (Frieman 2004, pp.29-30; Shen 2008, p.641).

indicate that such factors were only limited concerns. In addition, a realist analysis would predict that China could have spread nuclear weapons to balance against the superpowers, especially in the period when its arsenal was vulnerable. While some events confirm with this expectation – most notably China's nuclear cooperation with Pakistan, which was largely an effort to balance Indian power and Soviet influence in South Asia – it is still the case that China only to a very limited extent has used proliferation as a tool. In fact, most of the other cases of controversial nuclear exports outlined in this study, seems to be more related to profit-seeking motives from the nuclear industry than geopolitical reasoning.

However, a realist scholar might object that China could have broken its nonproliferation obligations if circumstances forced it to, and that the reason China has not proliferated on a bigger scale is that it has not had pressing reasons to do so, or that proliferating would have presented other risks. It could also be argued that undertaking nonproliferation pledges have not had any major security costs, especially as China has been able to rely on a nuclear arsenal of its own for security, and that the case outlined above is thus not really in breach with realist assumptions. There is some relevance in this: Even though the theory does not explain the changes in Chinese policies well, China's decision to sign the NPT is not really a “hard test” for realism.

A framework focusing on the importance of models of political survival and their related economic policies, on the other hand, seems better suited to explain the changes happening in this period. The factors promoting Chinese compliance with nonproliferation norms outlined in this chapter – both the economic ones and the political ones – almost invariably seem to be related to the change in the regime's attitude towards integration in the global economy happening in the 1980s. If the grand scheme of modernizing the Chinese economy was to succeed, China needed to improve political relations with a number of countries, especially Western ones. To be regarded as an obstacle in nonproliferation issues would have been in collision with this goal, and would have made economic cooperation, especially the task of building a civilian nuclear industry, much harder. As the task of economic modernization was deemed more important than sticking to former foreign policy principles, China had to

change its stance.

As pointed out above, China's recognition of the nonproliferation principles have more or less continuously deepened. The findings of this chapter therefore also gives reason to argue that the main driver of these changes was the continual Chinese integration into international society, and the deepening of the reform principles. In other words, the more the Chinese regime's model of political survival has been approximating an "internationalizing" one, the stronger the effect on its nonproliferation policy.

However, while the theoretical framework of Etel Solingen thus contributes with important explanatory power in this case, it is interesting to note that the causal mechanism is somewhat different from the case of China's nuclear force structure, which was explored in the previous chapter. In the case of the NPT, image concerns and the importance of improving relations with major trading partners seems to have been the main driving force behind China's changing nuclear priorities. In the case of China's nuclear posture, even though such factors arguably also mattered, it was mainly the wish to curb nuclear spending and direct resources towards the civilian economy that linked China's model of political survival with nuclear outcomes. It is also interesting to note that while nonproliferation policies have become increasingly restrained throughout the period, as China has become more and more integrated into the global economy, the strongest effect of the reform policies on posture came in the early phase of the reform period.

This indicates that the causal mechanism linking the independent and the dependent variables might be different according to policy area. The full implications of this will be explored in the final chapter.

5 China and the Comprehensive Test Ban Treaty

Since the initiation of the reform and opening in the late 1970s, China's arms control policies have changed markedly. From being isolated from and severely critical towards the international arms control agenda, China has taken significant strides towards becoming a much more constructive player and taking an active role in such efforts. China's international engagement in this area is of great importance, especially regarding Beijing's status as one of the five legally recognized nuclear powers. It is also a strong indication of its willingness to accept rule-bound behavior in areas related to international security, and of its integration into the international system more generally.

Skeptics have argued that Beijing has had a tendency to free-ride in arms control processes, supporting treaties that constrain others, but rejecting regimes that have impact on China's own freedom of action (Johnston 1996a, p.58). Up until it signed the CTBT, it was difficult to reject this assessment: Many of the arms control agreements China had previously agreed to sign in the post-Mao period – such as the Outer Space Treaty and the Seabed Arms Control Treaty, as well as several regional nuclear weapons free zone-agreement – did not present “a realistic limitation upon China's nuclear arsenal or deployment practices” (Gill 2001, p.261). In this respect, the CTBT is different, and the decision to sign it therefore marked a watershed in Chinese arms control policy. The treaty not only poses clear and concrete restraints on China's ability to modernize its arsenal, but also establishes a monitoring system for ensuring compliance, including a rather intrusive regime for inspections. For this reason, it marked the first real test of China's willingness to let its behavior be governed by arms control regimes. It was also the first major arms control negotiating process where China participated from the beginning throughout the end.⁴⁵ In sum, all this makes the CTBT a very important treaty to study if we are to understand the changes taking place in China's arms control policy during this period.

45 The negotiation of the Chemical Weapons Convention, which was concluded in 1992, was the first multilateral arms control process China participated in. However, it did not take part from the beginning of the negotiations.

This chapter first briefly introduces the background of the CTBT, and well as why the treaty is important from both a political and a military perspective. It then portrays the Chinese views of a test ban historically, and the events leading up to the negotiations starting in 1993. The next section outlines the negotiating process, and the intensified Chinese testing program taking place at the same time. The chapter will then discuss the reason why China decided to sign the treaty, arguing that it should be seen as a decision that had a relatively high cost and modest gains in a security perspective. For this reason, the treaty was unpopular internally, but China still perceived that it had little choice but to sign. This was chiefly due to two other broad factors, namely considerations of international image and the fear of isolation, and its concern with keeping Sino-US relations on track. In a wider context, the Chinese sensitivity to its image and relations with the US is a direct result of changes in the regime's domestic model of political survival, and the overarching focus on economic development since the launch of its reforms. The final section analyzes the extent to which the theoretical framework presented in chapter 2 corresponds with the findings of this chapter.

5.1 Background: The Tortuous Road Towards a Comprehensive Test Ban

The Comprehensive Test Ban Treaty was adopted by the UN General Assembly in September 1996. Under the treaty, states that have signed and ratified are obligated to “not to carry out any nuclear weapon test explosion or any other nuclear explosion”. The treaty has been described by former US president Bill Clinton as the “longest sought and hardest fought for arms control treaty in history”. This is arguably no exaggeration, as a ban on nuclear testing had been on the arms control agenda for decades: Already during the 1950s, there were calls for a CTBT, as the United States and the Soviet Union were met with widespread international criticism because of the radioactive fallout from hundreds of tests of hydrogen bombs (Kimball 2009a). These pressures, as well as the wish to improve US-Soviet relations after the Cuban Missile Crisis, led to the signing of the Limited Test Ban Treaty (LTBT) in 1963, under which

nuclear tests in the atmosphere, under water, and in space was prohibited (Medalia 2006, p.1). In 1974, the US and the USSR bilaterally signed the Threshold Test Ban Treaty (TTBT), which prohibited nuclear tests with yields above the equivalent of 150 kilotons of TNT.

Despite partial progress towards a ban on nuclear testing being made in this period, it was only in the 1990s, with the end of the Cold War, that a comprehensive test ban could finally be realized. After two and a half years of intense negotiations, the CTBT was completed in June 1996, and submitted to the United Nations General Assembly in September. As of September 2010, 182 states have signed the treaty, and 153 states have ratified it.⁴⁶ Because some of the 44 states required under annex 2 of the treaty to ratify it before it enters into force has yet to do so, including the United States and China, the treaty has still not entered into force.⁴⁷ Despite this, all the legally recognized NWS have observed moratoriums on nuclear testing since 1996.⁴⁸

To ensure compliance with the treaty, a comprehensive monitoring system has been established, using seismological, hydroacoustic, infrasound and radionuclide monitoring to detect nuclear explosions.⁴⁹ To prepare this verification regime, the Preparatory Commission for the Comprehensive Nuclear Test Ban Organization (CTBTO) was set up in 1996, with its headquarters in Vienna.⁵⁰ As of 2010, the monitoring system consist of 337 facilities set up in 89 countries. The data registered by these stations are sent to an international data center, where they are processed and analyzed, and then sent to the signatory states. Under the treaty, on-site inspections are allowed in cases where non-compliance is suspected, but, because the treaty has not

46 For a complete and updated list, see: <http://www.ctbto.org/the-treaty/status-of-signature-and-ratification/>

47 It might be argued that states that have signed, but not ratified the CTBT are prohibited from doing nuclear tests, as the Vienna Convention on the Law of Treaties obliges states to “refrain from acts which would defeat the object and purpose of a treaty” of treaties a state has signed until “it shall have made its intention clear not to become a party to the treaty” (Vienna Convention on the Law of Treaties 1969). Whether a

48 China tested for the last time only months before the treaty was signed. The other NWS declared moratoriums and stopped testing much earlier. The Soviet Union tested for the last time in October 1990 (Russia has not tested subsequently), the US tested for the last time in September 1992, while the last UK test was in November 1991. France, however, declared a moratorium in 1991, but later initiated a series of final tests between October 1996 and January 1996. After the completion of the CTBT, none of the legally recognized NWS have been suspected of testing. However the so-called threshold states Pakistan and India both conducted nuclear tests in 1998. In addition, North Korea has tested twice, in 2006 and 2009.

49 For a thorough description of these technologies, see (Dahlman et al. 2009, pp.25-58).

50 Since the treaty has yet not entered into force, the CTBTO is an interim organization. For more information, see www.ctbto.org

yet entered into force, this inspection regime is still not established.

5.1.1 Why is a test ban important, and what are the technical consequences of a CTB?

Why is a comprehensive test ban (CTB) important? To understand this issue, it should first be pointed out how nuclear tests have been politically controversial, especially because of their impact on the environment and on people living in relative vicinity of test sites, as well as personnel involved in tests. In addition, especially during the Cold War, nuclear tests were a very vivid manifestation of the superpower arms race, and the enormous harm nuclear weapons could inflict. Also, especially since the NPT was signed, nuclear weapons testing has been intimately linked to nonproliferation, and the NWS willingness to fulfill their part of the nonproliferation bargain, namely working towards complete disarmament.

In addition to these political considerations, a CTB is also important from a technical perspective, as testing has been an integral part of the development of nuclear weapons. Nuclear physicists and engineers have relied on tests to understand the physics of a nuclear explosion, and how to control yield, radiation and other basic parameters. In the development of new nuclear warhead designs, tests are useful to make sure that the warheads “fit operational requirements and validate such new weapons” (Dahlman et al. 2009, p.9). Testing has also been used for other purposes, such as making sure that warheads in stock are functioning, and to study the effects of nuclear explosions on different kinds of target objects (Dahlman et al. 2009, p.9).

Because tests are such a key part of nuclear weapons development, a ban on testing has major technical implications, and places constraints on both NNWS and NWS. First, it poses constraints for any NNWS who wants to develop a nuclear capability. It is possible for a NNWS to develop crude nuclear weapons without testing, as the South Africa and most likely Israel have demonstrated,⁵¹ but developing

51 On September 22, 1979, there was a mysterious “double flash” which was observed over the South Atlantic Ocean. Some have suspected that this was a South African nuclear test, which there were also analysts that believed Israel might have taken part in. South Africa has denied any involvement in this incident, however, and it has not been confirmed whether or not a nuclear test did indeed take place. See (Dahlman et al. 2009, p.9)

weapons to be used with more advanced delivery systems is another matter. Here, testing is necessary, or at least “highly desirable” (Dahlman et al. 2009, p.15). While most NNWS are already banned from testing and developing nuclear weapons under the NPT, and a test ban in this sense does not add much new, the monitoring system associated with the CTBT makes it possible to see whether or not the NNWS comply with their obligations.

Second, and even more important in this context, is the fact that a test ban places potentially strong constraints on the NWS and their ability to develop new and improved weapons. How strong these constraints are, and exactly how they affect the NWS, however, is a highly complex question. According to Dahlman et.al., it is to be expected that the large programs of the established nuclear weapons states “will provide tools to also upgrade and modernize the weapons” (2009, p.14). These tools are first and foremost the ability to do advanced simulations based on the data from former nuclear tests, calibrated by so-called experimental tests, either subcritical ones, or hydrodynamic ones.⁵² However, the authors also stress that “it is reasonable to assume that a test ban has a restraining effect on ambitions to design new ‘nuclear package’ concepts (Dahlman et al. 2009, p.15). Without testing the development of advanced warheads, such as multi-staged weapons, as well as reducing warhead size (increasing yield-to-weight ratio⁵³), is much more difficult.

In addition, a major cause for concern has been whether or not it is possible to keep current nuclear stockpiles reliable and safe without testing, because of fears that

52 A subcritical test involves “fissile material in quantities small enough not to sustain a nuclear chain reaction”, whereas a hydrodynamic test is one “where the fissile material has been replaced with inert material with similar properties” (Dahlman et al. 2009, p.12). Some believe such experimental tests should also be classified as nuclear tests, but they are not prohibited under the CTBT.

53 Miniaturizing warheads is important for several reasons. Generally, the weight of the warhead has an effect on the throw-weight of the missile, meaning that the range of a missile is heavily influenced by its weight. For this reason, miniaturizing warheads might allow a state to outfit a missile with a warhead with a higher yield. It can also allow a state to outfit its delivery vehicles with several warheads, instead of just one (MIRVed or MRVed missiles). In addition, solid-propellant missiles, that are often lighter and more mobile than liquid-fueled ones, generally have a lower throw-weight – in other words, they often cannot carry as heavy warheads as liquid-fueled ones. Similarly, SLBMs, that are small missiles, also often have lower throw-weight than land-based ballistic missiles. For the development of SLBMs and solid-propellant missiles, miniaturizing warheads is therefore crucial.

the aging of the plutonium might cause deterioration, and that necessary minor changes might change warheads from the already tested versions. Also, it is a problem that experienced nuclear engineers, that have actually designed and tested nuclear weapons, are retiring.⁵⁴ To cope with these issues, the United States have developed the so-called Stockpile Stewardship and Management Program (SSMP). This \$4,5 billion a year program uses “supercomputer simulations, laser blasts, and subnuclear test of components, including the high explosives used to trigger atomic bombs” (Deibel 2002, p.144). These simulations are also based on data from previous tests. The US program is the most well-known, but the other nuclear states probably have similar programs (Dahlman et al. 2009, p.12).

5.1.2 China’s Early Attitude Towards a Comprehensive Test Ban

Since a test ban has been on the international arms control agenda for such a long time, it is also an issue that have concerned the Chinese leadership even before China developed an indigenous nuclear capability. During the 1960s, Beijing remained vehemently opposed to a nuclear test ban, consistent with Maoist beliefs that such measures were simply a superpower ploy to keep their nuclear superiority and keep others from developing the same capabilities (Frieman 2004, p.39). The Partial Test Ban Treaty, which was signed just a year before China exploded its first nuclear device in 1964, was denounced as a “big fraud”, which was designed to “consolidate the nuclear monopoly” of the USSR, the US, and the UK. As the treaty only banned atmospheric tests, which China claimed that the US and the Soviet Union did not need to conduct anyway, the treaty was regarded as a direct attempt to keep the NNWS and states with only a small number of nuclear weapons from being able to defend themselves (Frieman 2004, pp.39-40).

During the 1980s, with Deng at the helm, China gradually changed its rhetoric and policies on arms control. In 1980, it joined the Conference on Disarmament, and in 1982, the Ministry of Foreign Affairs established its Disarmament Division (Caijun Chu), which was a part of the Department of International Organizations (Guoji Si)

⁵⁴ Critics of the CTBT, especially in the US, have repeatedly pointed to these problems, saying that it is impossible to maintain a reliable arsenal without testing. This debate is still going on, with some saying that the US “needs nuclear tests”. See, for instance, (Kyl 2009; Kimball 2009b).

(Medeiros 2007b, p.213). In 1983, China for the first time appointed an ambassador for disarmament affairs, its first multilateral ambassador, and the only one until a WTO ambassador was appointed almost 20 years later. These changes were also accompanied by a shift in the Chinese rhetoric on a test ban. In 1981, it acknowledged that a comprehensive test ban “could be one useful step towards the ultimate goal of disarmament” (quoted in Frieman 2004, p.40). In 1982, China put forward a proposal called “three halts and one reduction”, suggesting that all NWS should stop testing and engage in disarmament talks, if the superpowers agreed to stop all tests, stop all improvement and production of nuclear weapons, as well as reducing their arsenals by 50 percent. In 1986, China unilaterally declared a moratorium on atmospheric testing, thus de facto accepting the PTBT (Gill 2001, p.259).⁵⁵ The same year, it stated in the CD that “if an ad hoc committee on a nuclear test ban is established this year, the Chinese delegation will participate in its work.” (quoted in Zou 1998, p.3). In July 1990, it stated its understanding for the wish of developing countries and other NNWS for wanting a test-ban, but still cast an abstaining vote when a resolution calling for a comprehensive test ban was introduced in the United Nations (Gill 2001, p.259).

5.1.3 Increasing Pressure for a CTB after the Cold War

During the 1980s, a CTB still looked like a relatively distant prospect because of the superpowers' unwillingness to negotiate such a treaty. However, in the early 1990s, with the Cold War ending and the Soviet Union collapsing, a comprehensive test ban became the top item on the international arms control agenda. In 1990, the failure to produce a final consensus report at the NPT Review Conference was largely due to the lack of progress on realizing a CTB. In January 1991, more than 60 states called for negotiations on the CTBT “to begin at an early date”, pointing to the chance for success was much higher with the Cold War ended (Ramaker et al. 2003, p.12). At this

⁵⁵ In recent years, it has become clear that the US considered offering the Chinese government assistance in developing an underground nuclear testing capability. The motive for this was improving Sino-US relations, which was a top priority at the time, especially as an anti-Soviet measure. In 1979, President Jimmy Carter actually secretly offered Deng Xiaoping assistance during a visit to Washington by the Chinese leader, and Deng noted he would “consider” the offer. The offer met with resistance internally in the US government, both because of potential security implications, perceived damage to nonproliferation efforts, and because of fears that it might invoke paranoia in Moscow. Carter later changed his position, and only unclassified technology was offered. If there was any exchange of technology in the end, is not known. See (Burr 2010; Barthomolew et al. 1980; Lake et al. 1979).

time, and especially from the period after the Chemical Weapons Convention (CWC) negotiations were concluded in the CD in September 1992, there were supposedly internal discussions in China about the likelihood of a CTBT. From this point, more and more experts believed that with the CWC being concluded, negotiations on a test ban would be next (Informant L).

When US president Bill Clinton in 1993 made it a top foreign policy goal for the US to conclude such a treaty, it became evident that the CTBT was a very likely prospect, something the Chinese also recognized (Informant L). By this time, all recognized nuclear powers save China had also announced unilateral moratoriums on nuclear testing, which also indicated that negotiations were forthcoming (France later broke the moratorium, and conducted several tests before the conclusion of the CTBT 1996). In 1993, the CTBT became the key issue in the CD, and on August 10, the CD member states agreed to give its Ad Hoc committee on a CTB a mandate to begin negotiations on the treaty in January, 1994.

The increased pressure for a test ban forced China to take a stance on the issue. In a statement in October 1993, released after it conducted an underground nuclear test, China promised to take active part in the negotiations, and significantly, claimed that the PRC wanted to conclude the treaty “no later than in 1996” (Government of the People's Republic of China 1993). Despite this statement of goodwill, the question of whether or not China would agree to a test ban in the end was one of the greatest uncertainties before and during the process.

The issue of whether or not to sign proved controversial, and sparked a strong debate internally in China. As with the discussion about the NPT, it should be stressed that it was a strictly internal one, kept in academic circles and outside the public's eyes.⁵⁶ However, the respondents also pointed out that the disagreements internally about the CTBT were much more intense than those related to the NPT, and that the

⁵⁶ According to one expert interviewed, because of the centralized style of decision-making in China, when the top leadership had decided that it wanted to join, all government departments had to adhere to this, and that criticizing the decision too strongly would have been unacceptable. Because the decision to join was probably taken rather quickly after the US stated that they wanted a CTBT, the most intense part of the debate took place in a relatively short time span (Informant P). However, that they might have had to fall in line did not mean that they agreed with the leadership's decision – according to other respondents, there were also many who were skeptical of the decision that was made (Informant H; Informant I).

treaty was perceived as being far more controversial (Informant G).⁵⁷ According to Bates Gill and Evan Medeiros, the divisions internally “split roughly along ‘political’ and ‘military’ lines, though in practice the division was not so elegant” (2000, p.87).⁵⁸ This corresponds with the interview data of this study, with several respondents pointing to the PLA generally being “skeptical” or “cautious” about the treaty. In addition, the community of nuclear experts, especially the Chinese Academy of Engineering Physics (CAEP) – the primary Chinese design laboratory for nuclear weapons – was mentioned as being critical. However, not all the skeptics, including the ones interviewed, were affiliated with the military. Broadly speaking, the skeptics were unhappy about signing a treaty that constrained China’s possibilities for future nuclear modernization, especially given the superiority of especially US nuclear capabilities (Informant F; Informant G; Informant H; Informant I; Informant P). According to one expert interviewed, the skepticism of signing the CTBT can also partially be seen in a wider context, where more conservative voices internally criticized the government for generally being too ready to make concessions towards the US (Informant P).⁵⁹

At the other end, the MFA was claimed by several of the respondents to have been a force which generally promoted China’s support for the CTBT. Broadly

57 Some respondents pointed to the existence of two separate groups or even “schools” in this internal discussion and in discussions of arms control issues more generally, saying that there was a “optimist school” (leguanpai) and a “pessimist school” (beiguanpai). In fact, one of the respondents who was very critical about the treaty identified himself as belonging to the “beiguanpai” (Informant I). Other respondents disagree that there were such clear-cut divisions. Some of these respondents also tended to claim that the internal skeptics were only a small minority.

While it is hard to assess exactly how intense the disagreements were, it is important to point out here that the respondents claiming that there were significantly diverging views have no obvious interest in saying this, while the ones that denied this might have had an interest in downplaying the intensity of internal disagreement. For this reason, and also because other outside analysts have found evidence of the CTBT being a hotly debated topic, I find the account pointing to a relatively intense debate taking place to be more credible. I will still refrain from using the terms “optimist school” and “pessimist school”, because several respondents claimed that discerning two so distinct groups would be an exaggeration.

58 Also other external analysts have reported that the PLA was skeptical about the CTBT. According to Sokov. et.al, “the PLA resisted the signing of the CTBT but was persuaded to accept the government position” (2009, p.9).

59 The internal debate about relations with the US have pitted conservatives against more moderate forces within the party. Chinese president Jiang Zemin was by some conservatives perceived as being too “soft” on the US. This debate also relates to a broader internal debate about China’s development strategy, and how dependent it is on internationalization and good relations with the US. This debate continues to this day. See, for instance (John Lewis & Xue 2003, pp.936-937; Jakobson & Knox 2010, p.48).

speaking, the reason why the MFA promoted the CTBT was its concern about Sino-US relations, and the ministry being more experienced with international regimes and preoccupied with the importance of being on the inside than many other government organs (Informant F; Informant P). The interview data corresponds with the picture laid out by other outside analysts, that have claimed that the MFA argued internally that China had to sign because of image concerns, and because its “political and diplomatic maneuverability and progress required a constructive position on the CTBT” (Gill & Medeiros 2000, p.90). However, it should be underscored that there were also other forces working internally for China signing the treaty, perhaps even within the military. In a 1994 article about the CTBT, Senior Colonel Zou Yunhua labeled the treaty “an inevitable development”, seeming to signal that it would be difficult for China to avoid signing it. In her article, Zou (1994) pointed to how the US position on the CTBT had changed, the increasing pressure from NNWS, and how also the other NWS were willing to start negotiations. She also noted how the moratoriums declared by the “some of the nuclear weapons states” had promoted the test ban negotiations (Zou 1994).

In the end, the adherents of China signing the treaty won the debate, and the support of the central leadership. After approval in the UN General Assembly, China was among the first countries to sign the treaty. China’s subsequent reluctance to ratify is directly related to the fact that the US Senate in 1999 refused to ratify, a decision that was strongly criticized in China (See, for instance Fan 2000; Zhu 2000). All respondents believed that China would follow suit promptly if the US decides to ratify the CTBT.⁶⁰ However, even though the issue of ratification is of interest, that China

60 Jing-Dong Yuan (2009, p.33) has claimed that has been “a fierce internal debate about CTBT ratification” going on in China since the US Senate rejected the treaty in 1999. This study has also found evidence of such a debate taking place. One respondent mentioned that there are some that believe China could gain a moral victory by signing the treaty, and that there is no clear security rationale for not doing so. When ratifying, the respondent argued, China could just add a “clause” saying that if other countries resumed nuclear testing, China would withdraw from the treaty. Other respondents disagreed, however, saying that there was nothing significant to gain for China by ratifying early. The latter view is clearly the mainstream, something also the respondent in favor of early ratification admitted (Informant N; Informant P).

Interestingly, there has as of late also been Chinese experts that have argued openly in favor of ratification. In a recent article in the CTBTO magazine “Spectrum”, arms control expert Xia Liping of Tongji University claimed that ratifying the CTBT would have numerous advantages for China, including helping to “solidify China’s image as an open, transparent, and responsible nation, committed to following the road of peaceful development” (2010, p.11). He also noted how it would benefit China’s security, bolster its nonproliferation and arms control credentials, nudge the US in the direction of ratification by removing the

signed the treaty, and seems to believe to be bound by its provisions, is still much more important. Since it signed the treaty, China has not conducted any nuclear tests, and there have not been any allegations of Beijing trying to block the implementation of the treaty (Frieman 2004, p.39).

Before discussing the reasons behind the final outcome, it is important to look to the negotiations happening at the CD between January 1994 and August 1996, especially to the main positions put forward by China. Throughout the negotiating process, the Chinese delegation raised various concerns, but by the end of negotiations in 1996, it had reached compromises, and dropped several of its key objections. As will be pointed out in more detail, some of the concerns China raised during the process reflected serious considerations, while others were raised for tactical reasons, both as a way to show how it was ready to make concessions, and to make sure that the treaty was not finalized too soon. This was because China ran an intensified nuclear weapons testing program at the same time as the negotiations were taking place, and needed time to finish these tests. To understand why China decided to sign the treaty in the end, it is important to review this process as a whole.

5.2 The negotiation of the CTBT, 1994-1996

The CTBT negotiations took two and a half years, before they were concluded on August 14 1996, when the final text was issued in the CD.⁶¹ They were some of “the quickest multilateral disarmament negotiations ever to have taken place” (Ramaker et al. 2003, p.15), but even though differences were resolved in a relatively short time span, the negotiations were still difficult. On some the most controversial issues, such as the text of the preamble, the scope of the treaty, the verification system, and the

“China excuse”, strengthen the NPT regime, and benefit Chinese scientific communities because of the advanced technology used in International Monitoring System. (Xia 2010). Professor Xia’s views might obviously be only his own, and it would be very premature to see this as a movement towards Chinese ratification. However, that an academic with background from the PLA openly argues in favor of ratification, could perhaps signal that there is movement on the issue in China.

61 For a lengthy treatment of the history of the negotiations, and the positions put forward by various countries, see (Ramaker et al. 2003). Ramaker was the chairman of the CTBT negotiations in their final phase. This section borrows heavily from this work. For a Chinese perspective on the negotiations, see (Zou 1998). Senior Colonel Zou was a representative of the Chinese delegation, and also represented China in the CD through many years.

entry into force conditions, China had strong opinions on the treaty text.

At the same time as negotiations were initiated in Geneva, China embarked on an ambitious nuclear program at its test site Lop Nor in the Western province of Xinjiang. There was much lost ground to cover: In 1993, China was the NWS with the least testing experience, having done 39 nuclear tests between 1964 and 1992. Furthermore, between 1985 and 1991, partially because of the decreased emphasis on nuclear weapons and the military more generally, and tight military budgets, the Chinese had conducted only four tests in seven years, averaging only slightly more than one test biannually, compared to an average of 1,5 test a year between 1964 and 1984 (Informant M). Between June 1994 and July 1996 China more than doubled its average testing pace (Gill 2001, p.264).⁶² The exact purpose of the testing program is not known, as sensitive details about Chinese nuclear developments in such a recent past remains highly secretive. However, it is still possible to discern some likely goals from some of the interviews, as well as from US intelligence reports. Generally, it seems like miniaturizing their warheads for their next-generation road-mobile ICBMs was an important purpose, as well as warhead development for the next SLBMs (the JL-2).⁶³ US intelligence analysts also believe that another important goal was “the development of technologies to enhance confidence in warheads that are planned for an enduring stockpile under a nuclear test ban” (CIA 1994b, p.6). This would probably be technology for test simulations.

62 Bates Gill also points out how this period was “the only time in Chinese history that nuclear weapons were tested twice in three consecutive years.” He also remarks how it also “marked the only time in Chinese testing history that blasts occurred in July or August – outside the typical Chinese testing ‘season’ – also indicating a sense of urgency within the military and scientific communities” (Gill 2001, p.264).

63 The development of these new systems is described in more detail in chapter 3.

It is clear that the accelerated testing program in this period and the CTBT negotiations were intimately linked, as getting these modernizations done before a treaty entered into force remained very important for China. In fact, almost all the respondents interviewed about the CTBT largely agreed with this reasoning, saying that the last six tests were necessary from a military perspective. Many pointed out that it would have been difficult for China to sign the CTBT without them, perhaps also because they were needed to make the treaty more palatable to domestic skeptics.⁶⁴ At the time, the US was aware of this: In several intelligence reports from 1993-1996, US analysts state that it was very unlikely that China would agree to a test ban if it could not complete the required tests, and if these tests were not successful. For instance, a 1994 report from the US Defense Intelligence Agency (DIA) states:

“If China is successful in completing its modernization program on schedule, it will probably support concluding a Comprehensive Test Ban Treaty (CTBT) in 1996. However, a failure or delay of the remaining tests could result in additional tests, which could delay China’s acceptance of a CTBT” (CIA & DIA 1994).⁶⁵

Because it needed China on board for the treaty to be achievable, but knew that it would be unlikely that they signed a CTBT if they did not finish their testing program, US protests about the tests remained relatively muted. According to several expert interviewed, the Chinese understood that US statements were “routine criticism”, and believed there was thus something of a mutual understanding between the US and China that China would have to complete its testing program before it could sign a CTBT (Informant F; Informant L). In fact, Beijing was relatively open about its testing needs, with an anonymous Chinese MFA official telling the international media in October 1994 that China would need to do to “a few more tests” (Los Angeles Times 1994).

64 Interestingly, one of the respondents interviewed believed that the last six nuclear test China conducted could be seen of the domestic bargaining process. Because of strong opposition to the CTBT especially within the PLA and the scientific community, the respondent claimed that the last six tests had to be done to “appease” these skeptics (Informant G). When asked if they believed this might have been the case, one of the other respondents partially agreed to this, saying that the military value of the tests is overrated, and that it was probably true that the last tests were necessary to convince the critics internally (Informant H). Somewhat similarly, Wendy Frieman (2004, p.58) suggests that giving them research budgets for stockpile stewardship might have been a method the Chinese government used to “buy off” the skeptical nuclear scientists. However, several respondents disagreed that the last tests were part of such a domestic bargain. It is therefore hard to confirm whether or not this was the case.

65 See also (CIA 1993a; CIA 1993b; CIA 1993c; CIA 1994; CIA 1995a; CIA 1995b; CIA 1995c).

Despite being able to finish six nuclear tests before announcing its moratorium, there are some indications that at least some in China wanted even more tests. According to several CIA reports from 1995, China planned to do three test in 1996 (in the end, it only did two). The report underscores that three tests would be unlikely because of China's limited testing capability, which might also be the reason that it did not do the last of these (CIA 1995a; CIA 1995b).

5.2.1 China's tactical bargaining

According to some of the respondents interviewed, the decision that China was going to sign the CTBT was probably made in the top leadership at a relatively early stage, probably even before the negotiations commenced (Informant L; Informant P).⁶⁶ This viewpoint is also supported by outside analysts: Bates Gill claim that "a political decision to sign the treaty had been made by 1993 or earlier" (2001, p.264). However, because it wanted to finish its testing program, China did not want the negotiations to be completed too rapidly. According to an interviewee, the Chinese delegation to the CTBT was asked to "win some time" for China. (Informant P). Internationally, there were voices calling for the treaty to be concluded fast: Some of the NNWS were hoping that it would be ready in time for the NPT Review Conference in 1995. This could potentially have caused trouble for the Chinese, and made it difficult to complete their testing program, especially if the first tests had failed.⁶⁷

Winning time, and probably also because it wanted to display its readiness to make concessions in some areas, and thus strengthen its bargaining position, was the reason why China raised some demands during the early phases of CTBT negotiations

66 One respondent said explicitly that this was the case, whereas the other respondent said that despite the differences of opinion during negotiations, there was never really any doubt that China was going to sign the treaty, indicating that this decision had already been made (Informant L; Informant P).

67 Arguably, the Chinese might not have had too much reason to be concerned with this anyway, as the US had outlined 1996 as its schedule for completing them as well. However, from Beijing's point of view, it was probably important to be absolutely sure that there was no unexpected breakthroughs in the negotiations. In fact, the Chinese might also have kept one other door open for keeping its program running longer if tests failed or China for some other reason had to do more tests. In its 1993 statement, the government said that "After a Comprehensive Test Ban Treaty is concluded *and comes into effect*, China will abide by it and carry out no more nuclear tests" (Government of the People's Republic of China 1993, emphasis added). The wording here is important: It can take time before a treaty comes into effect, even after it is signed and ratified by the required states. On the other hand, as outlined in footnote 47, a state that has signed a treaty is arguably obliged to "refrain from acts which would defeat the object and purpose of a treaty", and testing after it had signed the CTBT would therefore probably have had a high reputational cost.

it knew that it would be very difficult for other states to support. In fact, one of the respondents admitted that the Chinese concerns raised during the negotiations can be divided into “real” concerns and “tactical” ones, which were positions China was ready to give up later (Informant P). Several of these issues that were merely tactical, were indeed fully dropped in the end-game of the negotiation process.

Peaceful nuclear explosions (PNEs). The main example of such a tactical demand that the expert quoted above mentioned, was the issue of so-called peaceful nuclear explosions, and whether or not they should be allowed under the treaty. PNEs are nuclear explosions done for non-military purposes, for instance mining or other civilian economic activities.⁶⁸ From March 1994, until the end game of the negotiations, China kept insisting on allowing such PNEs. It claimed that PNEs could be useful for its economic modernization, and that China, unlike other NWS, had not had the possibility to examine the viability of PNEs. The Chinese delegation also argued that other treaties, including the NPT, allowed peaceful use of nuclear energy (Zou 1998, pp.10-11).

Most countries disagreed with China throughout the negotiations on the issue of PNEs, and in the end, China was the only country supporting such a provision. The reason most nations remained critical, was that it would be difficult to separate a PNE from a nuclear explosion with military utility, and they also argued that PNEs had already been proven not to be of use in civilian activities (Ramaker et al. 2003, p.60). Despite the resistance, China did not budge, and it was only on June 6 1996, during the very last phase of the negotiations, the Chinese ambassador to the CD, Sha Zukang, stated that China could accept a “temporary ban” in order to “facilitate the conclusion of the treaty (CD/PV.737 1996). China insisted that it was important to keep the door open so the PNE issue “could be raised in the future”(Zou 1998, p.12). However, with a consensus vote required at two different stages, China knew that reaching a decision in favor of PNEs at a later stage would be an extremely unlikely prospect. Therefore, the main reason Beijing opted for such an “opening” might have been to reduce the impression that it was never really serious about the issue.

68 Both the US and Soviet had programs for PNEs, trying to explore if such explosions could be economically useful. The programs have subsequently been dropped, and today, China is the only country claiming that PNEs might potentially be useful.

Satellite- and electromagnetic pulse- monitoring. Another demand that seems like a clearly tactical “non-starter”, was related to the International Monitoring System (IMS). Regarding the IMS, there was disagreement about what sort of technologies that should be included in the system. China, along with Pakistan, insisted that a global network of satellites, as well as lightning electromagnetic pulse (LEP) monitoring should be a part of it.⁶⁹ Most other countries argued, however, that such a system would be extremely expensive and not cost-effective, and that the four other technologies suggested - seismological, hydroacoustic, infrasound, and radionuclide monitoring – would be sufficient for establishing a functioning IMS. The United States also argued that adding additional technologies would make the negotiations more complex, and thus draw out the process. (Zou 1998, p.15).

In the end-game of the negotiations, the issue of satellites and LEP monitoring was also dropped entirely, without China getting any kind of support for its position. In a statement to the CD on August 1, Sha Zukang, the Chinese ambassador to the CD, listed this as one of the topics where China had “shown compromise and flexibility”(CD/PV.743 1996).

In her evaluation of the final treaty text, senior Colonel Zou Yunhua (1998, pp.25-26) includes a passage listing which points in the final treaty text China considered to be unsatisfactory. Revealingly, the issues of satellite and LEP monitoring, as well as the PNEs, are left out entirely, despite China's strong insistence on their importance during the negotiations. This is a further indication that these issues were raised only for tactical reasons.

Preamble text. Another demand that was probably at least partially tactical, was China's concerns about the text of the preamble.⁷⁰ With the preamble, the most important controversy during the negotiations was whether it should be linked to other issues than the testing of nuclear weapons. China was a proponent of the former view, claiming that a test ban should be seen in a wider context, and that this should also be

69 In addition, the Chinese also argued against the use of so-called noble gas detectors being part of the IMS, saying that this technology was not proven to be effective enough. Whether the noble gas-issue was a tactical one or not is hard to assess, but in the end, China dropped its resistance entirely.

70 The respondent that mentioned “real” and “tactical” concerns did not mention the preamble issue as a tactical one, but it was also not mentioned as a “real” one (Informant P).

reflected in the preamble of the treaty. Most importantly, the Chinese insisted on the inclusion of a no-first-use provision and negative security assurances (NSA) in the preamble text, which they claimed was “more important” than a test ban, as it would “enhance international peace and security” (Zou 1998, p.20).⁷¹ The inclusion of such a text was a potential deal-breaker, however, as especially the United States remained severely opposed to such a provision. On 6 June 1996, only in the final part of the negotiating phase, China agreed “as another gesture of flexibility”, to withdraw the proposed text (CD/PV.737 1996).

5.2.2 Chinese key concerns during the negotiations

Even though some of its bargaining was clearly tactical, there were also areas where the Chinese had more substantial objections, and was much less ready to drop their demands. There were especially two issues that were mentioned by respondents as “real concerns”, namely the treaty text about basic obligations,⁷² and the issue of on-site inspections (OSI), including the debate on what kind of information that could trigger such inspections, and the decision-making procedure for instigating an inspection. In addition, the entry into force-conditions were of importance. Finally, the issue of how to treat the data from the IMS was probably not a tactical one, but at the same time not a major concern.

Scope Conditions. During the negotiations, the scope conditions, or the basic obligations of the treaty,⁷³ were one of the issues that took the most time to resolve. Basically, the participants had different opinions about what sort of nuclear explosions – all, or just those above a certain yield – that should constitute a breach of the treaty, and under which circumstances, if any, a nuclear explosion should be allowed.

71 Ever since it first developed nuclear weapons, China has proclaimed an NFU policy, promising only to use nuclear weapons if attacked with such weapons first. It has also promised never to use nuclear weapons against a NNWS state (this is the so-called negative security assurance). The inclusion NFU and NSA pledges in the text were consistent with a long-held Chinese position, as it has consistently pressed for other nuclear states to undertake a NFU pledge (see for instance Rong 2009). As other states have been highly unwilling to agree to this, a skeptic might view this as a way for the Chinese to “take the moral high ground” in arms control negotiations, and block consensus.

72 The issue of PNEs was also, in fact, a part of the negotiations about the scope of the treaty. For analytical clarity, the chapter still treat PNEs in the former section, as the issue of PNEs was not a “real” concern.

73 During the last part of the negotiations, the term “scope” was changed to “basic obligations”.

The NWS held numerous private consultations on this issue, and initially, they all had different opinions. At one end, the US argued that nuclear tests with a very low yield, “a few pounds”, should be allowed. China, at the other end, held that if any threshold should be allowed, it would have to be “up to several hundred tons” (Ramaker et al. 2003, p.57).⁷⁴ The reason for this was that China claimed not to have the technical capability to do very small yield nuclear tests, and that a treaty allowing such explosions would benefit the NWS with the most advanced testing capabilities. In addition, China argued that such low-yield explosions are impossible to verify (Frieman 2004, p.42).⁷⁵ Most of the NNWS, on the other hand, saw a treaty that allowed nuclear weapons tests of any yield as contrary to the purpose of the treaty, and something which would give the NWS a possibility to improve their capabilities and develop more advanced nuclear weapons.

The issue of whether or not nuclear tests of any yield should be allowed, was solved in the latter half on 1995, when first France, and later the US, the UK and Russia said that a true zero yield test ban was acceptable (Ramaker et al. 2003, p.67).⁷⁶ It is very hard to say whether or not a treaty with different scope conditions – for instance allowing small yield tests – would have been acceptable to China in the end. Arguably, as it could potentially have given the other NWS an advantage, the Chinese would have stayed very persistent. However, as most of the NNWS did not want a treaty that allowed tests of any yield, it is probably also doubtful if a CTBT that

74 The highly technical question of what threshold, if any, should be allowed, was a tricky issue for the Chinese delegation. An expert interviewed therefore recalled how people from the MFA asked the technical experts in the CAEP for a position. Even for the CAEP, these questions were difficult to answer, so they would give replies where they pointed out pros and cons, but did not clearly endorse one view. Because the MFA needed a clear position in the negotiations, however, they supposedly “threatened” the CAEP, saying that if they did not get a clear answer, the MFA would decide by itself, and that it was too late to complain once the deal was signed. (Informant M).

75 Exactly how trustworthy a monitoring system can be has also been the subject of intense debate, especially in the US, where the fear of “cheating” from other NWS has been a strong argument against the treaty. For what is supposedly one of the most authoritative studies of what a verification system might be able to detect (and about some of the technical effects of a test ban more generally), see (National Academy of Sciences 2002). The National Academy of Sciences study claimed that “The capabilities to detect and identify nuclear explosions without special efforts at evasion are considerably better than the 'one kiloton worldwide' characterization that has often been stated for the IMS. If deemed necessary, these capabilities could be further improved by increasing the number of stations in networks whose data streams are continuously searched for signals” (2002, p.6).

76 The “threshold states” Pakistan and India also argued that experimental tests, such as those outlined above, should also be prohibited by the treaty. This was not acceptable to the NWS, and in the end, it was not included in the treaty text. See (Ramaker et.al. 2003, s.69-71).

allowed small-yield tests could ever have come into being.

On-site Inspections. On-site inspections proved to be perhaps the toughest issue of all for the Chinese. China voiced its opinion strongly here, and it was the very last to be resolved in the negotiating process. Several respondents have pointed out how this issue was a very sensitive one in China, because of its traditional strong emphasis on sovereignty, and the fact that such inspections were seen as very intrusive. For Beijing, multilateral binding inspection regimes was something new, which it had only been introduced to very recently, when it signed the CWC in 1993. The Chinese were concerned with the potential for abuse of such inspections, and that other countries would use them as a pretext for spying on its nuclear weapons program (Informant F; Informant L; Informant P).

One controversial point was what sort of information that could be used to trigger an on-site inspection. The Chinese, along with especially India and Pakistan, believed that an inspection should only be triggered based on evidence from the IMS, and not through so-called “National Technical Means” (NTM) (Ramaker et al. 2003, p.143). NTM is a term that originated with the arms control diplomacy of the superpowers, and refers to “countries’ use of their own verification methods – such as the use of satellites, technical measures, or other forms of surveillance, such as espionage – to verify other parties’ compliance” (Gill 2001, p.260). The reason for the Chinese concern with NTM was that developed countries, and especially the US and Russia, had a much more advanced capability for collecting intelligence through advanced technology. In addition, the Chinese claimed that information obtained through spying could be used, and that there was a “potential for mischief-making in the triggering of OSI through NTM information” (Zou 1998, p.19).

The NTM issue seems to have been a very real concern in China, and not a tactical one (Informant F). But with the end of the negotiations drawing near, China stood isolated in its resistance to the NTM as a means for triggering inspections. In the end, China therefore perceived it as necessary to drop most of its demands here, supposedly “in return for a modification in the language that would govern on-site inspections” (Frieman 2004, pp.46-47), probably because these rules for decision-

making were perceived as being even more important. This was the issue where China put up the strongest resistance, and it was the very last issue of all to be resolved.

Disagreements over how an on-site inspection would be triggered and approved stood mainly between the US and China. Basically, the US wanted to make inspections readily available by having a “red light” system, where an OSI would be initiated automatically if requested, unless a majority in the Executive Council actively disapproved. China, on the other hand wanted a “green light” system, where a request for an OSI would have to be approved beforehand, and by a two-thirds majority (CD/PV.737 1996). China was worried that because of NATO and its many allies and friends, it would be too easy for the US to ensure the support of 26 out of 51 states in the Council (Ramaker et al. 2003, p.166).

In what was supposed to be final draft of the treaty, written by ambassador Ramaker, a “red light” procedure with simple majority was included. While this was supported by almost all the states participating in the negotiations as the final treaty text, China remained adamant that this issue would have to be renegotiated and that it was not willing to accept such a decision-making procedure. The Chinese resistance was so strong here that it threatened the treaty as a whole. Therefore, on August 9, a final change was made in the text: Instead of a simple majority, it would be required that 30 out 51 members of the Executive Council would have to vote in favor of an OSI (Ramaker et al. 2003, p.167).

It is hard to say whether or not China would have been ready to let the negotiations fail over this issue. One of the respondents claimed that it was obvious that some sort of compromise would have been reached anyway, but that China would have persisted in its insistence that 30 votes were necessary (Informant L). Recalling the process, and the intense bargaining between the US and China in the final phase, another respondent believed that both China and the US were being “stupid” in the process, fighting for something that was perhaps not as important as they claimed it to be at the time, “wasting time and money”. However, during the negotiations, the respondent pointed out, China regarded this as a major sticking point from a national security perspective (Informant M).

Data processing and entry into force conditions. Even though scope conditions and OSI were the most important “real” concerns for Beijing, two other issues should also be mentioned. First, with the system for verification, China disagreed with the proposed way of organizing the work of the International Data Center (IDC) that was to collect all the data sent from the monitoring stations. As the amount of data sent to center every day would be thousands of pages a day, the analyzing of these data would be a complex task. The United States suggested that the analyzing should be left to the signatory states, and that the IDC should only process, condense, and distribute data (Frieman 2004, p.45). Many developing countries, including China, disagreed with this principle, as analyzing all the data would require a lot of resources. For this reason, China argued that the system would favor the developed countries. In 1996, a compromise was reached on the issue, in which not all of China’s demands were met, but where the IDC was still given more responsibility in independent analysis than the US had originally suggested (Zou 1998, p.17; Frieman 2004, p.45).

Also, a final area where China had significant objections to the proposals put forward by other negotiating states, was the conditions for the treaty entering into force. This was also one of the last areas where an agreement was reached, and the most difficult subject of the negotiations after scope conditions. The debate centered around which, and/or how many countries would be required to sign and ratify the treaty before it entered into force (Ramaker et al. 2003, p.235). One central problem, among others, was whether or not the so-called nuclear threshold states India, Pakistan and Israel⁷⁷ had to be included in a list of states that would have to ratify, and how to make this list without the treaty being “politically discriminative”. The Chinese, along with Russia and the UK, were adamant in their position that the threshold states would have to be included. The Chinese delegation also claimed that singling out the five NWS “from the perspective of political equality” would be “inappropriate” (Zou 1998, p.21). India, on the other hand, was strongly against its name being mentioned in the formula for entry into force, regardless what the criteria such a list would be based upon (Ramaker et al. 2003, p.253).

⁷⁷ North Korea could now also be characterized as a nuclear threshold state, but was not in this position during the mid-1990s.

The compromise that was reached was a list consisting of 44 States that according to the IAEA had nuclear power and research reactors, and that were members of the CD. Both India, Pakistan, and Israel were included on this list, and the Indian government took strong issue with this suggestion, effectively blocking the consensus-based CD from agreeing on the final treaty text. For this reason, the final text was not adopted in the CD, but the text was still put forward to the United Nations General Assembly. There, an overwhelming majority – including China – voted in favor of the treaty, which therefore became open to signature.⁷⁸

5.3 Why did China sign the CTBT?

What were the reasons behind the Chinese decision? To answer this question, it is first important to look to China's bargaining behavior, and the compromises that were made in the negotiating process. In the end, the CTBT became a treaty that was acceptable: Even though the Chinese had to make concessions on some issues it regarded as important (most notably on the issue of NTM as a trigger for OSI), it also had its way in some other areas, especially the issue of the text governing inspections.⁷⁹ Even more importantly, China managed to make sure that the negotiations were not completed too soon, and to do six nuclear tests before signing the treaty. As pointed out, it is very unlikely that China would have been willing to agree to the treaty if it had not been able to do these tests.

Even if the treaty text was deemed to be acceptable to Beijing, however, another question is if it was pleased with the final outcome, also from a security perspective. Some analysts claim this is the case: According to Jeffrey Lewis (2007),

78 The process in which the treaty was approved was complex, and not without controversy, as the member states “sidestepped” the CD to avoid India and Iran blocking an agreement. For a short overview of this final process, see <http://www.ctbto.org/the-treaty/1993-1996-treaty-negotiations/1996-ctbt-a-long-sought-success/page-1-1996-ctbt-a-long-sought-success/>.

79 It could be argued, however, that the Chinese could point to few provisions which it proposed that were included in the final treaty text. Wendy Frieman claims this to be the case, arguing it to be largely due to the Chinese negotiators being “perpetually in ‘catch up’ mode”. (Frieman 2004, s.53). A quote from the Chinese delegation verifies the impression that the Chinese delegation might have had a hard time: In the initial phase of the negotiations, they argued that it was «moving too fast, like a bullet train» (Ramaker mfl 2003, s.19). The CTBT was the first international arms control negotiations where Chinese participated from the beginning to the end, so the problem of making their mark on the treaty might be related to lack of experience.

the reason why China signed the CTBT, was that it saw the final treaty as being beneficial for national security. The main reason for this, in Lewis' opinion, is that China is confident in the stability of deterrence, and views a modest nuclear arsenal as sufficient for this purpose.⁸⁰ Because it could finish its testing program, Lewis argues Beijing believed it could enter the CTBT without risking the credibility of deterrent force, and at the same time gain a very significant nonproliferation benefit, especially by restraining India's nuclear options (Jeffrey G Lewis 2007, pp.129-140).

Lewis' account of China's arms control policy is an original one, and it points out some important weaknesses of more skeptical perspectives, such as those presented by Johnston (1996a). However, there are also some clearly problematic sides to his explanation, especially regarding the question of costs and gains of the treaty for China.⁸¹ As the following section will point out in more detail, the data of this thesis do not support the conclusion that Beijing signed the treaty because it saw it as beneficial for national security. Even though getting to do the extra tests and putting

80 The argument Jeffrey Lewis' makes about arms control is part of the his broader framework for understanding Chinese nuclear weapons policy, presented in chapter 3.

81 There is also one other key points in Lewis' account that is clearly problematic. As part of this explanation of why the CTBT did not represent a major cost to China, Lewis also claims that China foresaw a test ban and started preparing for it at a very early stage. Already in 1986, some leading technical experts started to worry that the US and the Soviet Union might be willing to sign a CTBT. This supposedly led to an accelerated test program being approved in the Central Committee of the CCP, and because of this foresight, China had developed the nuclear capacity it believed it needed by the time the CTBT was signed 10 years later (Jeffrey G Lewis 2007, pp.92-102)

However, the notion that China foresaw the CTBT already in 1986, and started an intensified testing program already at this stage, is clearly debatable. During interviews, there was only one of the experts who believed this assessment to be accurate: Several other respondents claimed China started preparing at a much later stage, probably around 1992-1993. These respondents noted how a test ban was politically unthinkable in the 1980s because of the resistance from the US and the Soviet Union. It was only after the end of the Cold War, and the Clinton administration's decision to make a CTBT a top foreign policy priority, that Beijing started speeding up its testing program (Informant A; Informant L; Informant N; Informant P). Furthermore, if it is true that the Chinese started preparing already in the mid-1980s, one should believe that the number of tests would have increased from this stage: Instead, between 1986 and 1992, the testing activity was at an all-time low. This can, of course be partly due to the fact that China needed to design new warheads before they could start testing more intensively, as the respondent that supported "early preparation"-thesis claimed (Informant M). Without data about Chinese warhead designs, it is hard to assess this, but arguably, it is still unlikely that this is the only relevant factor, especially as the expert also admitted that the low emphasis on and declining budgets for the military was another reason for the low testing activity in the late 1980s. If China foresaw the CTBT in 1986 and took the issue as seriously as Lewis claims, it is strange that its leaders then did not allocate more funds to nuclear testing. Finally, if it is true that China was dedicated in its preparations for the CTBT already in 1986, it is strange that it still needed to rapidly increase the pace of its nuclear program from 1993, the very same year it became obvious that there would be negotiations on a CTB. With such a foresight Lewis credits Beijing as having, it would have been unnecessary to engage in these intensified tests, especially as also Chinese analysts admit that they were politically damaging (Zou 1998, p.5).

constraints on the access to inspections sweetened the pill, almost all the Chinese experts interviewed still regarded the CTBT as a treaty that had security costs, and few argued that these were offset by security gains. That China signed, in the end, and has announced a moratorium on nuclear testing, is therefore all the more remarkable, and makes it important to try to understand the basic driving forces behind its acceptance of the treaty.

A caveat must be put before the analysis of the costs the treaty has for China. In this part, there is special reason to question whether the opinions stated by the Chinese informants reflect their views today, almost 15 years after China agreed to stop testing, and not the rationale held during the time. Because of some important developments after this period, for instance the advent of more credible missile defense systems, as well as more accurate and powerful long-range conventional weapons systems, China might be more concerned about the credibility of their arsenal today than during the mid-1990s. In addition, the 1998 Indian and Pakistani nuclear tests might have made many Chinese more critical about the treaty. For this reason, some of the respondents might regret the decision, and analyze it with the gift of hindsight.

However, while this analytical problem is not possible to fully eliminate, it should be pointed out that some of the documents quoted that corroborate the view that the CTBT was costly for China, were written only a few years after the conclusion of the treaty. In addition, Chinese policy-makers should arguably have been able to factor in that some such developments could come to pass: A treaty like the CTBT is something policy-makers would consider with “worst case”-scenarios in mind. Thus, even though the test ban might have proven more costly than Chinese analysts expected in 1996, it is unlikely that they did not consider such potential future costs at the time.

5.3.1 What costs did signing have for China?

As an outset for a discussion about the costs of the CTBT for China, the main constraints a test ban place on the NWS outlined in the beginning of this chapter should be kept in mind – that designing new warheads become more difficult, and that

Table 5.1: Summary of Nuclear Testing (as of November 2010)

State	Date of first test	Number of tests
USA	July 16, 1945	1030
Soviet Union/Russia	August 29, 1949	715
United Kingdom	October 3, 1952	45
France	February 13, 1960	210
China	October 16, 1964	45
India	May 18, 1974	3
Pakistan	May 28, 1998	2
North Korea	October 9, 2006	2
Total		2052

Based on (Dahlman et. al. 2009). The figure for North Korea has been updated, as the country tested for the second time on May 25, 2009.

it is more difficult to ensure the safety and reliability of the nuclear stockpile. Obviously, these are challenges that all nuclear weapons states face. However, for two related reasons, they are perhaps bigger challenges to overcome for states with a less advanced nuclear capability, like China.

First, the remedies to these problems, especially making advanced simulations, is probably less readily available for the PRC than for other states. Simulations are based on testing data. As China has only done 45 nuclear tests, the amount of data it has available is smaller than that of any of the other NWS, especially as the US cooperates with the UK in exchanging data. According to media reports, because of the test ban, the US has also secretly signed a deal with France, giving France access to data from US nuclear tests and computer simulations. France, on the other hand, supposedly gave the US access to a French laser facility (The Washington Post, quoted in Medalia 1996). This places China in a inferior position vis-a-vis all the other

NWS.⁸² In addition, US and perhaps also other NWS capabilities in making experimental tests are also likely to be more advanced, especially if the three Western NWS are cooperating and sharing information about such tests. Even though China's capabilities in this area have now improved considerably, during the mid-1990s, China did not have the supercomputers needed to do simulations (Zhen 2001, p.45).

Second, and even more importantly, at the time when the CTBT was signed, China's nuclear capabilities were much less developed than any of the other legally recognized NWS. Since a test ban makes it more difficult to improve and modernize the arsenal, especially for a state with perhaps more limited capacity to do simulations, the thus CTBT makes it hard for the Chinese to catch up with the other states. In fact, according to an authoritative study from the US National Academy of Sciences (NAS) (2002, p.73), even if the PRC tries to do clandestine nuclear tests, the information gained from tests that it could potentially hide from the IMS as well as US and Russian NTM, would have had relatively limited utility and not allow it to develop a new nuclear warhead. Even though the Chinese can of course develop the non-nuclear parts of its arsenal, as well as making some improvements also in the nuclear components, the CTBT still potentially locks China into a situation of constant nuclear inferiority, especially vis-a-vis the United States and Russia.⁸³ In addition, if any problems arise with its stockpile, China would probably be in more trouble than the other NWS: Because of its small number of nuclear warhead designs, a problem would most likely affect a larger part of its stockpile. In fact, US intelligence analysts claimed already during the early 1990s that because "Beijing probably could not solve a major problem without testing", it "would be at a disadvantage, as compared to the other nuclear states" (CIA 1993a, p.13).

82 It might be argued that the last six tests gave China information it could use for designing new warheads later. This has supposedly led some US analysts to believe that the Chinese have enough information to design warheads the next 10-20 years (Frieman 2004, p.56). However, even if this is true, the Chinese will not be able to validate their final warheads. Also, as the CTBT is indefinite, 10-20 years is arguably not such a long perspective.

83 In fact, proponents of the treaty in the US have advanced this as one of their arguments, pointing out how the CTBT would "curtail advances in nuclear weaponry by Russia and China, locking in American superiority" (Deibel 2002, p.144). The NAS study quoted above also state that "Given that the United States has already conducted more than 1,000 nuclear tests, however, compared with 715 of the Soviet Union, 215 of France, 45 of Britain, and 45 of China, and given the relative maturity of U.S. designs, it is likely that the other countries that would be unconstrained in the absence of a CTBT could make more relative progress with additional tests than could the United States "(2002, p.63).

It should also be pointed out that even if China might not have very ambitious modernization plans for its arsenal, as Jeffrey Lewis points to, his argument does not adequately take into consideration how the CTBT puts a long term constraint on the China. Even for a state who is confident with a small arsenal, events may arise that make modernization of nuclear warheads desirable. Here, US plans for a ballistic missile defense system, which was intensified significantly just a few years after the CTBT was signed, is an important example. Several Chinese experts have claimed that given the US efforts to develop such a system, not being able to test could become a dilemma, as qualitative improvements that require testing might be one important way to overcome these defenses (Informant O).⁸⁴ Even though missile defense might was not as high on the Chinese agenda in 1996 as it was a few years later, it still seems unlikely that Beijing did not have the imagination to see that potential future events could make nuclear testing desirable from a national security perspective.

For these reasons, it is not surprising that many Chinese have argued that China made significant sacrifices in signing the treaty. Senior Colonel Zou Yunhua, while still claiming that China had “the capacity” to sign, hold that the CTBT came with a higher cost for China than for any of the other NWS, and points out that it “will impose severe limitations on any further modernization of the Chinese nuclear arsenal” (Zou 1998, p.26). Arms control expert Sun Xiangli (1997, p.8) has been even more blunt, saying that China was “not technically ready” for a test ban, and would have wanted to do more tests.⁸⁵ She has also claimed that because the PRC will be at a disadvantage with a CTB in place because of its lack of an “extensive SSMP-like program [Stockpile Stewardship and Management Program]”, and that a CTB therefore “would seem to not only freeze the gap between China and other nuclear states, but very likely enlarge this gap also” (Sun 1997, p.10). The interview data suggests that this assessment is widely held in China: many of the experts agreed that

84 The expert quoted also pointed out, however, that not all counter-measures to a BMD required redesigning of warheads, and that not all redesigning required testing. For instance, conventional testing was mentioned as an option. The expert still held that the BMD coupled with a test ban raised important concerns, and that the Chinese needed to do more research on the issue (Informant O).

85 Sun Xiangli’s institution - The Institute of Applied Physics and Computational Mathematics (IAPCM) - is affiliated with the nuclear testing community (CAEP). As pointed out above, within the CAEP, there was widespread skepticism about the CTBT.

the CTBT had potentially important security costs, and that the price China paid was higher than that of the other NWS.

By comparison, there seems to be few Chinese that have argued that the treaty's potential gains offset the costs. It is true that the treaty potentially constrains countries that China does not want to see develop nuclear weapons. At the same time, it should be pointed out that it did not prevent India and Pakistan from testing in 1998, and that few respondents mentioned this factor as a key reason for signing. In addition, some Chinese analysts have also pointed to that the treaty might promote disarmament generally among the US and Russia (Sun 1997, p.11). However, while this may have been a consideration, it should be noted that most of the respondents did not mention it at all. Furthermore, it is debatable if the treaty has had this effect, especially as the disarmament agenda largely stalled after the completion of the CTBT. Also, some have argued that the CTBT promotes nonproliferation, which China also sees as being in its interest. As many NNWS demanded progress on the disarmament agenda, signing the CTBT can be seen as demonstrating their "good faith" in article IV of the NPT, and therefore strengthen the nonproliferation agenda (Sun 1997, p.11; see also Zou 1998, p.7). But how important the NPT was really seen as being in China in 1996 is debatable, and the "NPT effect" was also something most respondents failed to mention. In total, the security gains for China were relatively modest, and few respondents claimed that they offset the costs.

At the same time, it should be pointed out that there seems to be disagreement internally about exactly *how* high the costs were. At one end, there were several respondents that argued that even if the CTBT did have costs from a national security point of view, it was not that much of a problem to undertake these. They typically also pointed out that China is relatively comfortable with the size and qualitative status of its deterrent, and that China for this reason had the capacity to sign the treaty. It is important to underscore, however, that even most of these respondents did not support the conclusion that the CTBT was *beneficial* from a national security perspective, and still largely portrayed it as a treaty China signed mainly because it had to, and not because it wanted to. Also, though some mentioned the potential benefits of

constraining also other states, there are few respondents that gave this very much weight, and very few that suggested that China signed because such security gains outweighed the costs (Informant D; Informant E; Informant L; Informant M; Informant N).⁸⁶

At the other end, there were respondents that claimed that the costs of the treaty were very large. Even though many pointed out that China would not have signed if a test ban had represented a major risk to the credibility of its arsenal, and believed the decision was the right one to make, they still portrayed it as potentially having a rather significant negative security impact, with some saying that it hit China at a “crucial time” in its nuclear weapons program. These respondents typically stressed that the treaty was something China had to sign because of other factors were forcing its hand (these factors will be analyzed in more detail later) (Informant A; Informant F; Informant G; Informant P). In fact, there were even two respondents, who in a relatively rare display of criticism of the top leadership, argued that signing the treaty was a serious mistake, as the costs were too high, and the decision was thus clearly not in China’s national interest. (Informant H; Informant I).⁸⁷

Even though this disagreement paints a somewhat confusing picture, the divergence in views also underscores an other important point, namely that the treaty is still regarded as controversial, almost 15 years after it was signed. This controversy probably largely reflect previous disagreement: As pointed out earlier, the CTBT generated a heated internal debate before and during the negotiating process. That treaty has been and remains controversial, is telling. If signing the treaty had been perceived as a low-cost decision that China could undertake lightly, the issue is not likely to have spurred such heated debate. Indeed, internal disagreement should perhaps be seen as a cost in itself for the leadership, especially when powerful constituents such as the PLA are involved.

86 There was one respondent who tended to support Lewis’ conclusion, all the others were clearly stating reasons why China signed that were unrelated to security gains.

87 These analysts also pointed to the fact that the US did not ratify the treaty in the end, which they believed made the final outcome of the negotiations ridiculous. If it had been possible to openly review the decision to sign the treaty in China, they argued, the people pushing internally for China signing would have been severely criticized. They also regretted the fact that it was not possible to have a more open discussion before and during the CTBT negotiations, believing that the outcome would perhaps have been different then.

In sum, then, even though it is difficult to give a completely accurate response, Beijing arguably still saw the CTBT as having a relatively high cost, and low pay-off in national security terms. Even though a relative confidence in the quality of its arsenal certainly contributed to China signing, many Chinese believed it still had certain risks. The security benefits, on the other hand, were seen as less tangible.

The question that thus remains, is why a treaty that generated suspicion and dislike at home, and that was perceived by many as having a high toll, was still accepted.⁸⁸ The following section analyzes this question, pointing to how the influence of several factors made signing the CTBT an outcome the Chinese perceived as being largely unavoidable. It argues that these factors were related to China's overall change in economic development strategy, and the fundamental importance of China's reform program.

5.3.2 Signing an unpopular treaty: Factors promoting Chinese compliance

Even though the experts interviewed disagreed in their evaluation of how high the costs of the treaty were, their account of *why* the leadership approved the signing of treaty is more coherent. As noted, almost all agreed in the assessment that the CTBT was a treaty China could not escape, and pointed to many of the same broad factors behind this.

Most of the respondents believed the image costs of not signing the CTBT to unacceptable for China. The international pressure for signing the treaty was massive, and China would have been in an isolated position if it had rejected the test ban. The wide support among the developing countries and NNWS more generally – which China had traditionally claimed to be the champion of in its rhetoric – significantly strengthened this pressure. This contributed heavily to Beijing regarding acceptance of the treaty as the lesser evil, and the voices calling for China signing winning the internal debate. Even though they put it forward in different terms, almost all of the

⁸⁸ A comment made by a Chinese diplomat about the CTBT is revealing. The diplomat is supposed to have said to a US colleague during a dinner in early 1996 that “make no mistake, China will sign the CTBT; and make no mistake, once signed, we will adhere to the CTBT. But we *hate* it!”(quoted in Frieman 2004, p.59).

respondents portrayed image concerns as a key factor behind China's decision (Informant D; Informant E; Informant F; Informant G; Informant K; Informant L; Informant M; Informant O; Informant P).

Why was image such an important concern for China? In fact, several respondents pointed to the fact that in an era where economic development was the overarching goal, China has become much more susceptible to international pressure and sensitized to the importance of its image. In the CTBT process, being perceived as a responsible major power was deemed as crucial, and this prodded China towards compliance. If the reform program was to be successful, China needed a favorable international environment, and could not afford to be isolated internationally. In this period, the wish to strengthen its image as a responsible great power was perhaps also further strengthened by the process of Hong Kong returning to the mainland's jurisdiction, which China wanted couched in «the right international atmosphere» (Zou 1998, p.7; also Informant K). Thus, just like with the NPT, image-costs and the widespread acceptance of the treaty was a key factor in promoting Chinese compliance.⁸⁹

In addition, several of the respondents mentioned bilateral relations with the United States as having a strong impact on China's behavior (Informant D; Informant E; Informant G; Informant K; Informant P). At the time, even though US-China relations had improved considerably, memories of the deterioration of relations after the government crackdown on protesters at Tiananmen square were still fresh in mind. For China, being on a relatively good footing with the US was a key factor if its reform program was to succeed. With Washington making the negotiation of a CTBT a top priority, China was facing considerable pressure to go along with the US position, as blocking the treaty could have had a negative effect on bilateral relations. For this reason, US preferences influenced China's choices, again just like with the decision to join the NPT, but this time even more directly.

Third, since the CTBT, unlike the NPT, had a direct security impact, the end of

⁸⁹ Both Zou Yunhua and Sun Xiangli underscore the importance of its image and China's wish to develop its economy, and the relationship between the two. However, for them to argue that China was pressured into making a decision would probably be too controversial, and thus their argument is worded in more positive terms. See (Zou 1998, p.6; Sun 1997, p.11).

the Cold War, and the substantial reductions in US and Russian arsenals also played a more important role. With its international environment seen as being more benign, sacrificing some traditional security interests for other gains, such as improving China's image, was deemed to be worth the risk (Informant G). This probably contributed to the leadership calculating that the costs of the CTBT were acceptable (Informant D; Informant H; Informant I; Informant L).

It should be pointed out, however, that changing threat perceptions, while important, is clearly not enough to explain the final decision. As noted above, the CTBT was hardly cost-free, and there were influential constituents who were skeptical of or even in disagreement with the central leadership's assessment. If it had not been because of the greater weight of other concerns, China would probably have chosen to stay out of the treaty. For this reason, threat perceptions and the status of Chinese arsenal should only be seen as only one part of a bigger picture, and more as an enabling condition than as an independent variable pushing in the direction of treaty acceptance.

Would China have signed the CTBT if the factors noted above – most notably, its image, and concerns with relations with the US – had not been present? Even though counter-factual reasoning is a risky endeavor, it is arguably unlikely, as the treaty was seen as costly, and that China thus had to be «pushed» into signing. In fact, one respondent put this point through very explicitly by arguing that under different circumstances, the result would have been different. Had China been stronger, relations with the US worse off, or had China already been in an isolated position, the respondent believed, China would have refused to sign. However, “the factors were there”, and they were all pointing in the same direction – China having to sign (Informant P).

5.4 Conclusion: The economic reforms change China's arms control policies

In sum, then, what can be learned from the case of China signing the CTBT? This chapter has argued that Beijing felt forced to sign the treaty mainly because of the fear

of international isolation and harming its international image, and because of the importance attached to relations with the US. The Chinese leadership believed it could not afford further international isolation in this period, and was also very concerned with keeping the key bilateral relationship with the US from deteriorating again, after finally being back on track after the Tiananmen crisis. If its reforms were to succeed, and the “contract” with the population of delivering economic growth was to be fulfilled, China needed further internationalization and integration into the international society, and a sound relationship with Washington. Because of the broad international support for a test ban, and the importance the Clinton administration attached to securing a treaty, China felt compelled to go along.

That China signed the CTBT underscores the strong effect the Chinese economic reforms have had on its foreign policy, also in areas directly touching on core security interests. By agreeing to halt all nuclear testing, China has effectively said itself willing to perpetually freeze a position where US and Russian nuclear capabilities are much more potent than those of its own arsenal. Even though China managed to get its will through in some cases during the negotiation of the treaty, it also had to accept some points that it was initially opposed to, especially the issue of NTM as a trigger for on-site inspections. In sum, the treaty was seen by many as having a potentially significant security cost, and was clearly controversial internally, with some powerful constituents remaining skeptical or even directly opposed to the treaty. That China still chose to sign, shows the distance it has traveled since the Mao era, when it shunned all such agreements, especially if they could be perceived as having even the slightest cost in national security terms.

That two of the broad factors that prodded China in the direction of signing the CTBT – image concerns and the importance attached to Sino-US relations – were also part of its rationale to accede to the NPT, is telling. In the post-Tiananmen climate, when the Chinese leadership wanted to get its reform program back on track after a period of international isolation and a conservative backlash, these two factors seem to have a strong and continual impact on its nuclear policy-making.

How does this fit with the theoretical frameworks outlined in chapter 2? Like

with the NPT, realism generally does not offer too much explanatory power in this case. A realist perspective would perhaps point to a relaxed security climate, China's growing relative power, as well as the potential to suppress new nuclear aspirants as factors pointing in the direction of China signing the CTBT. However, while not without importance, this analysis has pointed out that these factors were not the main reason China chose compliance. In addition, as the treaty had concrete security costs, a realist perspective would generally point in the direction of noncompliance, or at least skepticism towards the treaty. Even though China was relatively confident in its deterrent, it still arguably even at this point did not have the secure second-strike capability that many realist scholars portray as vitally important. Furthermore, even if China did have a second-strike capability, most realists would be skeptical about agreeing to a treaty that inhibits nuclear modernization in the future, as it is difficult to assess whether or not such modernizations might be needed at some point. It might perhaps be replied that China would be likely to break out of the CTBT if the credibility of its arsenal was really under threat, but since weapons development take time, to «wait and see» is a strategy that has considerable risks, and that does not confirm with realist logic.

By contrast, the framework focusing on domestic models of political survival, and the importance of integration in the global economy, seems to offer more explanatory power also in this case. As previously noted, the most important factors promoting Chinese compliance are both directly related to China adhering to an internationalizing model in this period, and the strong emphasis given to the economic reform program. In addition, in the case of the CTBT, it seems like it is highly unlikely that the outcome – China signing the treaty – would have occurred if it was not for these factors influencing Beijing's preferences. Even though making such a counterfactual argument presents a risk, the data of this chapter lends support to such a conclusion.

In sum, it thus seems like the framework of Etel Solingen functions rather well also in this case, despite being put to a challenging test. This is a strong indication of its relevance when trying to explain China's arms control policies more generally.

However, it should be pointed out that like with the case of NPT accession, the causal mechanism is somewhat different than in the case of China's nuclear force structure, where it was especially the cost of nuclear weapons that linked the Chinese regime's model of domestic political survival with nuclear outcomes. The next chapter, which sums up the main findings and the theoretical and political implications of this thesis, will deal with this issue in more detail.

6 Conclusions

The objective of this study has been to explain the rationale behind the changes in China's nuclear policies since the end of the 1980s. It has sought to analyze China's nuclear policies along three dimensions, namely its force structure, its nonproliferation policies, and its arms control policies. These three areas have been explored through three detailed case studies, namely the development of China's nuclear force structure since the late 1970s, the decision to join the NPT, and the decision to sign the CTBT and halt nuclear testing. Through these three case studies, the aim has been to provide a comprehensive overview of Beijing's policies, and to describe and analyze some of China's most important decisions in this period.

The study has further explored the relevance of an analytical framework developed by Etel Solingen for explaining nuclear restraint. The theory holds that a regime's model for domestic political survival and its associated economic development strategy is a key variable in explaining nuclear preferences. "Internationalizing" regimes seeking integration in the global economy are posited as being likely to forfeit nuclear weapons, whereas "inward-oriented" regimes that resist such integration are thought to be more likely to seek to develop such weapons. Based on this framework, the study initially hypothesized that changes in the Chinese domestic model of political survival is a key driving force behind the changes in its nuclear preferences. Throughout the empirical chapters, the potential explanatory power of a rival theory, namely neorealism, has also been evaluated.

This chapter will review the main arguments and the findings of this study, and their theoretical implications. In addition, the chapter will evaluate the policy implications of these findings, and discuss whether or not Etel Solingen's framework is relevant for forecasting China's nuclear behavior. Here, the chapter argues that because of the continual overarching focus on developing the economy, Beijing is likely to lead a restrained nuclear policy also in the years to come. At the same time, it will point out that trajectories are not irreversible, and note some worrying trends that could perhaps push China towards adopting a more assertive nuclear policy in the

future.

6.1 Theoretical implications

Throughout the empirical chapters, this study has found relatively strong empirical support for the hypothesis that changes in the regime's domestic model of political survival has had a major influence on its nuclear preferences. As one should expect from the theoretical framework, China's overarching focus on seeking integration into the global economy and pursuing export-led economic growth has caused China's leaders to adopt a more restrained nuclear policy. Being dependent on good relations with the outside world for its reform program to succeed, and especially on improving relations with the US, has led China to accept arms control and nonproliferation agreements it previously shunned. Furthermore, the importance of shifting resource allocation from the military sector to the civilian sector has, at least for periods of time, led China to significantly deemphasize nuclear weapons modernization, and reduce the size of its arsenal.

Many of the key events explored in this study cannot readily be explained by other factors. That China cut drastically in both the budgets for the strategic forces and in the number of deployed weapons in the 1980s, despite the vulnerability of its arsenal, can only be properly understood by looking to the domestic economic reasoning behind this decision. Changing threat perceptions was certainly also a relevant factor, with Deng Xiaoping deeming the chances of all out war to be diminishing from the mid-1980s. However, changing threat perceptions cannot fully explain the nuclear shifts, as budgets started declining already during the late 1970s.

Similarly, the decision to join the CTBT is best explained by looking to China's focus on economic development. A test ban places significant and long-term constraints on China's ability to modernize its nuclear arsenal, and the deal was finalized at a stage when the quality of the PRC's strategic weapons was still clearly inferior to that of the other NWS. That it ended up signing, even though important constituents remained skeptical, was essentially because Beijing believed it could not afford the image costs and the damage to Sino-US relations associated with non-

compliance. The importance attached to relations with the United States, and the growing sensitivity to its international image, are both strongly related China's economic reform program. Without working relations with the US, and a tolerable international image, Beijing knew that its efforts of integrating into the global economy could have been seriously impeded.

Also the NPT case is well explained by this logic. That China signed the NPT, was also largely a result of China wanting to improve its international image, and its relationship with the United States, that was seriously damaged in the aftermath of the Tiananmen massacre. In addition, there were potential economic gains for China in signing the NPT, as it made civilian nuclear cooperation with other countries easier. However, it should also be noted that an important reason China choose to join the NPT, was that unlike the CTBT, the treaty was perceived as having few costs.

It is still important to point out that the theory's explanatory power varies somewhat according to policy area and period, and that there are some developments it does not fully explain unless supported by other arguments. As pointed out in chapter 3, after deemphasizing nuclear weapons for more than a decade, Chinese strategists and policy-makers seem to have started paying more attention to strengthening the second-strike capability of their arsenal from the mid-1990s. The size of China's arsenal stayed small, and Beijing thus still displayed a relatively strong nuclear restraint, which might have been at least partly due to the perceived political and economic costs of a nuclear buildup. Despite this, the increasing focus on survivability is still not fully explained by the framework, but rather seems to be related to a military strategic rationale.

6.1.1 Causal mechanisms: Differences according to policy area

In addition, as this study has pointed out, the main discernible causal linkage between the independent and dependent variables is somewhat different in the three cases. In the case of China's force structure, the strongest effect of adopting an "internationalizing" model seems to be that the PRC shifted resources from the military to the civilian sector, and sought to limit nuclear weapons expenditures. This

reduction in budgets and de-emphasis of the strategic programs happened primarily in the 1980s, when the country was still relatively poor. Internationalization, and the political and reputational costs associated with a nuclear buildup was arguably an additional incentive for constraint, and contributed to the decision of China keeping its arsenal small. However, this is harder to fully substantiate. In the NPT and CTBT cases, on the other hand, China's sensitivity to image and relations with key partners seems to have been the main driving force causing Beijing to reevaluate its nuclear preferences.

If these findings are relevant also for other NWS, they indicate that the causal mechanism linking "internationalizing" regimes and nuclear restraint might be different according to policy area. In the case of force structure and modernization, it seems like the expenses associated with a nuclear weapons program is the most important reason why "internationalizing" states might be more prone to restraint. Furthermore, it seems like this is of special importance when states are poor: As they grow more wealthy, states have more money to set aside for military modernization, and the effect of model of political survival might perhaps be weakened. In the case of arms control and nonproliferation policies, it seems like it is mainly image costs, and the importance of keeping relations with trading partners healthy, that lead "internationalizing" states to adopt more restrained policies. In such cases, it seems like a state's policies become more and more restrained the closer it is integrated into the global economy.

If this is the case, Etel Solingen's theory could be further refined and spelled out in more parsimonious terms when applied to NWS. Instead of pointing to three main causal pathways, two potential causal hypotheses could be expressed like this:

- (1) Because of reputational costs associated with non-compliance, and the importance of good relations with major trading partners, "internationalizing" nuclear weapons states are more likely to accept international arms control- and nonproliferation regimes and treaties than "inward-oriented" states.
- (2) Because of economic costs and the need to shift resources from the military to the civilian sector, "internationalizing" nuclear weapons states are more likely

to restrain the size of their arsenal and their qualitative modernization efforts than “inward-oriented” states, especially if the states are poor.

It should be stressed that these suggestions are very tentative. It is not possible on the basis of this study to establish whether or not they hold true also for other NWS, as they have only been observed in the Chinese context. Especially the second of these two suggestions should be treated with caution, as the evidence in this study is somewhat ambiguous: This effect was clearly present in the 1980s, but it is more uncertain to what extent it provides a good explanation of Chinese nuclear policy from the mid-1990s.

However, due to the theory-developing nature of this study, reaching such insights and further specifying the theoretical framework has a value in itself. What is needed, but which cannot be achieved in the context of this study, is to test the relevance of these suggested causal patterns for other NWS.

6.1.2 The relevance of the two main frameworks

In sum then, how do the theoretical frameworks outlined in chapter 2 fare when applied to China’s nuclear policies? Despite not being able to fully explain all aspects of China’s nuclear policy, and despite the needs for further specifying the causal mechanisms, Etel Solingen’s theory generally offers a powerful explanation of why China’s nuclear preferences have shifted. As pointed out, several key developments since the 1980s, especially China’s growing willingness to join arms control and nonproliferation regimes, but also its nuclear de-emphasis in the 1980s, is well accounted for by the framework. In especially two of the cases – the development of China’s force structure, and the decision to sign the CTBT – the theory has been tested in a difficult setting. Both of them are highly related to national security, the home court of realist theories, where domestic economic considerations are normally perceived to play a less important role. This further strengthens the impression of the theory’s relevance, and indicates that it would be worthwhile to pursue further research into the effect of economic development policy on nuclear preferences also

for other NWS.

A neorealist framework, on the other hand, generally seems less suitable to explain the policies of this period. This does not mean that the theory is without relevance: As seen throughout this study, there are some developments that are consistent with a realist assumptions, such as China's growing focus on decreasing the vulnerability of its arsenal in the 1990s, and its nuclear cooperation with Pakistan. In addition, a realist could point to the changing external environment, and argue that events such as the decline of the Soviet threat, China's growing relative power, and its concern with nuclear aspirants in its neighborhood might explain why the Chinese resistance to arms control and nonproliferation initiatives lessened. However, as seen throughout the study, while not irrelevant, such factors were not the main driving force behind China's nuclear restraint. Finally, both the de-emphasis of nuclear weapons in the 1980s and China's decision to sign the CTBT seem to be at odds with realist logic, as the first of these developments happened while China's arsenal was still clearly vulnerable, and the other locks China into perpetual nuclear inferiority vis-a-vis especially the US and Russia. In sum, despite being in its "home court", the neorealist framework leaves several key aspects of China's nuclear policies unaccounted for.

6.2 Policy implications

The findings of this study have implications for what can expected of China's future nuclear policy. To a certain extent, they can also provide policy-relevant insights for external players who wish to encourage continued nuclear restraint in China. In addition, if generalized to a larger population, the findings also wield policy implications that are relevant for other NWS. Because it has not yet been established that the findings of this thesis can be generalized to a larger population, this section will focus on the Chinese case.

Based on the framework outlined in this study, this section argues that China's nuclear policies are likely to remain restrained as long as its internationalizing model remains intact. At the same time, it also warns that it might be mistaken to assume that the mechanism outlined in this study will necessarily continue to affect China in

exactly the same way as in the past. It points to some other trends and mechanisms that might push China's nuclear policies in a different direction, and which thereby complicate forecasting Beijing's future actions.

6.2.1 The importance of further engagement

As pointed out in the introduction, the findings of this study are directly relevant for the discussion about whether to “contain” or “engage” a rising China. This study indicates that, at least so far, engagement has been effective in influencing Chinese behavior at least in this important policy area. As seen especially in the CTBT case, US engagement seems to have had a major impact: Beijing knew that Chinese participation in this treaties was an issue of concern in Washington, and that lack of compliance could have a negative effect on Sino-US relations.

This indicates that further engagement in the nuclear area, and trying to approach China with additional international arms control and nonproliferation initiatives, could be effective. Even if such initiatives are not perceived by Beijing to be in China's interest in themselves, the PRC leadership might agree to their provisions if the political costs of non-compliance are judged to be high. For this reason, if an initiative has relatively broad support in the international community, especially among important trading partners, China could be expected to go along, as Beijing is reluctant to be seen as an impediment to such efforts. In short, this study indicates China might be more receptive to arms control and nonproliferation efforts than often assumed, and that further engagement in this area could yield positive results.

In addition, the study has pointed to the importance of integration in the global economy more generally. If the mechanisms outlined here continue to hold true, further integration into the global economy should keep the Chinese nuclear policy restrained also in the future. In order to keep China from adopting a more assertive and non-cooperative nuclear policy, external powers should therefore not only engage China on nuclear policy-issues, but also see these in a broader perspective. Encouraging Beijing to continue and expand its economic reform policies, and

rewarding the constituents that are supporting the internationalizing model, could wield positive effects also from a security perspective. Conversely, outside forces should try to discourage any inward-oriented tendencies, and avoid emboldening constituents that support such policies. As pointed out in the theory chapter, trajectories are not irreversible: If the present Chinese leadership is replaced by inward-oriented critics, or at least has to make significant concessions towards such groups, nuclear policies might also change.

Admittedly, these suggestions are of a very general character, and does amount to concrete policy advice. However, crafting much more detailed advices on exactly how to engage China on nuclear issues, and how outside forces could encourage Beijing to keep its internationalizing model intact, is a task that is to challenging to be achieved in the context of this study. At the same time, this study underscores the importance of further exploration of this subject.

6.2.2 Will internationalization restrain China in the future?

While the suggestions outlined above could wield positive results, it is important to realize that they rest on one central assumption, namely that keeping an internationalizing model for domestic political survival will affect China in the same way in the future as it has in the past. While this could be the case, it cannot be taken for granted. There is reason to be aware of the potential pitfalls of linear extrapolation, namely believing that engagement and further integration in the global economy will inevitably continue to produce a more restrained nuclear policy in the same pattern as in the past. In fact, some other mechanisms could possibly pull China in the opposite direction than the restraining ones outlined above, or at least mitigate some of its effect.

First, there is reason to ask whether the law of diminishing returns might reduce the effects of further internationalization on nuclear policy. In the past, integration in the global economy provided China with major economic benefits, which gave the states able to impede this integration significant leverage over its policies. As seen in this study, the United States in particular used this leverage to try to influence Chinese

nuclear behavior. However, it is not certain that further integration in the global economy and further improvement of ties with Western states will present China with the same payoffs as in the past. If it does not, the leverage of Western states over Chinese nuclear policies would decline. While it is clearly not certain that this would necessarily translate into China adopting a more assertive nuclear policy, it would at least make it more difficult for Western states to press China into making arms control or nonproliferation decisions that it views as detrimental to national security.

Second, and related to the first point, one might ask whether changing *relative* economic power could influence the pattern of restraint. Throughout the 1980s and much of the 1990s, the relative balance of power was tilted heavily in favor of the Western states, on which China was highly dependent for its reforms to succeed. However, years of double-digit economic growth has changed these terms. Especially in the aftermath of the financial crisis, many observers have pointed to the fact that China's relative economic power has grown significantly. Potentially, this could also affect Beijing's nuclear calculus, and mitigate some of the effect of an internationalizing model of domestic political survival.

So far, there are no clear indications that these mechanisms have affected China's nuclear policies. However, there are some indications that they have affected China's foreign policy more generally. Especially since president Obama took office, there has been a tendency towards a growing assertiveness in China's diplomacy, and an increasing willingness in Beijing to project its power in the Asia Pacific region. This was seen for instance in the recent spat with Japan over the Senkaku/Diaoyu islands, where China's relatively aggressive diplomacy and halting of exports of so-called rare earth minerals caused concern not only in Asia, but also in Europe and the US. Whether such growing diplomatic assertiveness is a long-term development, and whether or not it will spill over into the nuclear realm is a hard question to answer, but also an important one to consider.

Finally, there is also reason to ask whether or not the mechanisms outlined in this study will be sufficient to keep China's policies restrained if its leaders believe the credibility of its arsenal to be under serious pressure. Some worrying signs of the

opposite have emerged after the US decision to increase funding for its missile defense system. Even though a missile defense system has been on the agenda in the US for a long time, the growing ambition of the program, and the US decision to withdraw from the ABM treaty in 2001, have caused concern in China. Despite US leaders' insistence that it would be designed to intercept accidental nuclear launches and attacks from “rogue states” or terrorists, many Chinese believe the system is directed towards the PRC.⁹⁰ Numerous Chinese experts have argued that a functioning missile defense system might threaten their country’s retaliatory capability, with some even claiming that it is part of a US strategy to contain China (Fan 1999, p.17). To counter this threat, some have claimed that China might have to respond by increasing the size of its arsenal, perhaps by a large margin (B. Li 2001; Sun 2006, p.26). Even though such an increase have not yet taken place, a US technological breakthrough could possibly change this.

There are also indications that US missile defense plans have harmed China’s willingness to commit to further arms control. Chinese concerns over this issue seem to have contributed to the long deadlock in the Conference on Disarmament, and the failure to start negotiations on a Fissile Material Cut-off Treaty (FMCT), as China between 1999 and 2004 insisted that the negotiations of the FMCT had to happen simultaneously with negotiations of a treaty on “preventing an arms race in outer space” (PAROS) (Jeffrey G Lewis 2007, pp.135-139). By insisting on negotiating these two issues simultaneously, which the US objected to, negotiations on the FMCT were put off the table for years.

In sum, there are several potential mechanisms that could pull China in the direction of a more assertive nuclear policy even if its internationalizing model remains intact. While none of these have brought about major changes in China’s nuclear calculus so far, it would be reckless to dismiss their potential to influence policies in the future.

6.2.3 Forecasting China’s nuclear policies

What does all this tell us about the future of China’s nuclear policies? In fact, the

⁹⁰ For an introduction to the Chinese debate on missile defense, see (Uruyama 2004).

existence of several potentially opposing mechanisms pointing in different directions makes forecasting China's nuclear behavior a daunting task. In addition, internal or external changes could alter the way these mechanisms influence Chinese nuclear policies. For these reasons, attempts at forecasting will necessarily be fraught with uncertainty.

Despite this caveat, it is still important to keep in mind that China's nuclear policies have remained relatively restrained so far, and that the effect of an internationalizing model has been relatively robust. This indicates that even if weakened, it is improbable that its restraining force will be completely negated in future, at least in the short- to medium term.

If this holds true, it is important to ask how likely it is that China will stick to its internationalizing model. While a detailed treatment of this question is outside the scope of this study, other research indicates that a change in policy does not seem imminent. According to a recent study by Jacobsen and Knox (2010, pp.49-50), despite a certain skepticism from some constituents, there are no major actors in China that oppose the central leadership's key decision of engaging with the outside world. Of course, events could arise that would change this picture: An international crisis, for instance over Taiwan, would most likely strengthen conservative constituents, for instance within the PLA, that are known to be more inclined towards relying on nationalism for pushing their own agenda (Jakobson & Knox 2010, p.45). Domestically, failure to handle the numerous problems created by the economic reform program, for instance huge income discrepancies, rampant corruption, environmental degradation and the massive migration from the countryside to the cities, might also harm the support for the economic reform program. However, unless a crisis hits China, it does not seem probable that Beijing will substitute its internationalizing model for an inward-oriented one in the near future.

Added up, this gives reason for cautious optimism. As long as the support for the internationalizing model remains intact, and China focuses on its economic reforms, there is reason to believe that China's nuclear policy will remain restrained and relatively cooperative also in the years to come. At the same time, this study

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underscores how further Chinese nuclear restraint cannot be taken for granted, and that not only external events, but also domestic politics, could change Beijing's nuclear logics.

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Appendix: List of interviews

Informant A, senior former diplomat, interviewed May 5, 2010, Beijing.

Informant B, scholar, interviewed May 10, 2010, Shanghai.

Informant C, scholar, interviewed May 10, 2010, Shanghai.

Informant D, scholar, interviewed May 11, 2010, Shanghai.

Informant E, scholar, interviewed May 11, 2010, Shanghai.

Informant F, policy analyst, interviewed May 20, 2010, Beijing.

Informant G, arms control expert, interviewed May 21, 2010, Beijing.

Informant H, scholar, interviewed May 25, 2010, Beijing.

Informant I, scholar, interviewed May 25, 2010, Beijing.

Informant J, arms control expert, interviewed May 28, 2010, Beijing.

Informant K, scholar, interviewed May 28, 2010, Beijing.

Informant L, arms control expert and former military official, interviewed June 11, 2010, Beijing.

Informant M, scholar, interviewed June 25, 2010, Beijing.

Informant N, arms control expert and former military official, interviewed June 25, 2010, Beijing.

Informant O, arms control expert, interviewed June 29, 2010, Beijing.

Informant P, scholar, interviewed June 30, 2010, Beijing.