North Korean Supernotes: Nuclear Arms Financed By Counterfeit Currency

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NORTH KOREAN SUPERNOTES:
NUCLEAR ARMS FINANCED
BY COUNTERFEIT
CURRENCY

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Intelligence and National Security Studies

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NORTH KOREAN SUPERNOTES:

NUCLEAR ARMS FINANCED

BY COUNTERFEIT

CURRENCY

By

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THESIS

Presented to the Faculty of the Graduate School of

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for the Degree of

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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>A.Q.K.</td>
<td>Abdul Qadeer Khan, chief nuclear scientist, Pakistan</td>
</tr>
<tr>
<td>BDA</td>
<td>Banco Delta Asia</td>
</tr>
<tr>
<td>BEP</td>
<td>Bureau of Engraving and Printing</td>
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<tr>
<td>CIA</td>
<td>Central Intelligence Agency</td>
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<tr>
<td>CBRN</td>
<td>Chemical, Biological, Radioactive, Nuclear [weapons/arms]</td>
</tr>
<tr>
<td>DPRK</td>
<td>Democratic People’s Republic of Korea – North Korea</td>
</tr>
<tr>
<td>EO</td>
<td>Executive Order</td>
</tr>
<tr>
<td>HEU</td>
<td>Highly Enriched Uranium</td>
</tr>
<tr>
<td>HRES</td>
<td>House Resolution</td>
</tr>
<tr>
<td>IAEA</td>
<td>International Atomic Energy Agency</td>
</tr>
<tr>
<td>IAI</td>
<td>Illicit Activities Initiative</td>
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<tr>
<td>IRBM</td>
<td>Intermediate Range Ballistic Missile</td>
</tr>
<tr>
<td>KOMID</td>
<td>Korea Mining Development, Trading Corporation</td>
</tr>
<tr>
<td>KPA</td>
<td>Korean Peoples’ Army</td>
</tr>
<tr>
<td>KWP</td>
<td>Korean Workers Party</td>
</tr>
<tr>
<td>LWR</td>
<td>Light Water Reactor</td>
</tr>
<tr>
<td>MTCR</td>
<td>Missile Technology Control Regime</td>
</tr>
<tr>
<td>NIS</td>
<td>National Intelligence Service</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-government organization</td>
</tr>
<tr>
<td>NMD</td>
<td>National Missile Defense</td>
</tr>
<tr>
<td>NPT</td>
<td>Non-Proliferation Treaty</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
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OFAC  (US Department of the Treasury) Office of Foreign Assets Control
ROK  Republic of Korea – South Korea
TOC  Transnational organized crime
UNSCR  United Nations Security Council Resolution
USFK  United States Forces Korea
CHAPTER 1: INTRODUCTION

1.1 Background

North Korea is considered to be one of the most closed and secretive nations on Earth. The reasons for its isolationist identification are multifold, but can be best explained that after the Korean War, 1950-53, the DPRK, founded by President Kim Il Sung, adopted a policy of ostensible diplomatic and economic self-reliance, or Juche. Under this doctrine, strong military posturing and dependence on national resources made for a self-imposed segregation from the international community. North Korea maintains that it is still in a state of war, yielding in a highly militarized area, where its Songun, or military-first policy, continues to isolate this country from the world. The sensitivity of this situation creates an obscure vision of North Korea. DPRK’s isolationist posturing can be demonstrated, for example, by denying economic monitoring agencies access to vital national statistics. Verifiable information as to how North Korea manages its finances and ultimately how DPRK manages to survive as a nation is coveted, but withheld. The prevalence of academic research on this nation, in regards to domestic analyses and relationships with the international community, are difficult to find.

Currently, the extent of academic knowledge of North Korea’s nuclear motivations are primarily based on theoretical security disciplines (namely, rational deterrence and organizational bureaucratic political theories) comprised of political negotiations, economic strife, and social and class misalliance.¹ Historiographical research that analyzes past events and attempts to introduce new empirical data to formulate new economic and military oriented

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patterns or causalities can also be found, however, the presence of specialized academic knowledge, due to DPRK’s nature of withholding information, is limited and research about the North Korean dilemma is greatly subjective. Examinations tend to be deeply speculative without providing a basis of analytic and process-oriented inquiries that provides objective feedback.

It is the goal of this investigation to aid in the compilation of limited academic research on North Korea and examine potential motives towards its behavior, especially in regards to its alleged production of very high-quality counterfeit US currency, or supernotes, and a possible connection to nuclear arms development. In contrast to theoretical or historical research, the application of a methodological tool, more specifically Analysis of Competing Hypotheses (ACH), based on scientific cognitive processing will be used to evaluate the North Korean supernote-nuclear relationship. The application of this research method strives to negate subjectivity by minimizing cognitive limitations is an invaluable tool when making judgments that entail a high risk of error in reasoning.

1.2 Research Area of Study

North Korea’s policy of nuclear armament is a growing threat that is endangering international diplomacy and security. DPRK is a crippled and fragile nation and its relationship with the international community is severely restrained. Although its means of financing an atomic arms program are limited, exhaustive measures to inhibit the further development and proliferation of North Korean nuclear weaponry, primarily through the application of sanctions, has encouraged DPRK to seek ulterior means to finance its hostile agenda. The sources of these illicit funds are numerous, however, the production of high-quality, counterfeit US supernotes could be a powerful catalyst in fulfilling DPRK’s nuclear objectives.

The motives as to why DPRK demands a seat as a world-class nuclear power needs to be
more empathetically studied and addressed, so as to placate North Korean diplomacy and prevent nuclear development and proliferation. Further assessment of the fabrication and distribution of counterfeit US currency facilitates in gaining additional insight in regards to DPRK’s nuclear weapons development, and also provides a reflective insight as to how the illicit printing of US money serves as a multifaceted weapon that undermines American security, by devaluing the economy. Ultimately, the argument of this thesis will address whether North Korea is manufacturing supernotes and discuss the extent of how supernotes are financing North Korea’s emerging nuclear arms program.

The existing body of academic literature on North Korea and its responsibility in the production and proliferation of US counterfeit currency is not well-developed; not surprisingly so, as the acquisition of verified intelligence in regards to this matter is not plentiful and speculative at best. Therefore, to better understand the gravity of North Korea’s nuclear potential propagated by US supernotes, a structured evaluation assessed by weighted evidence will be compiled and analyzed by employing ACH. As much is unknown about North Korea, proving or disproving a hypothesis that DPRK’s production of counterfeit US supernotes and its relationship to nuclear arms development leaves much supposition. Employing a cognitive process-oriented research model based on a scientific method that provides an auditable trail of thought processing, such as ACH, will encourage more discussion of the North Korean dilemma.

1.3 Research Aim and Objectives

This thesis will use Analysis of Competing Hypotheses to evaluate whether DPRK is producing supernotes and will determine to what extent supernotes are financing North Korea’s emerging nuclear arms program. In attempting to reach this aim the application of ACH will delegate the incremental goals in satisfying the following objectives: the development of
multiple hypotheses in an attempt to explain a supernote-nuclear arms program link, assessing evidence from assorted sources, providing a diagnostic weighing hypotheses and evidence, and refining the evidence for inconsistencies and sensitivity. Evidence gathered will be provided from a multitude of sources; from governmental sources, news outlets, and texts from specialists in the study of currency production and nuclear studies. The acquired evidence will be used to critically verify if North Korea has the means to produce supernotes, then a determination of the optimal hypothesis will be executed, as well as a summary of alternatives that were considered and why they were rejected. The milestones developed throughout the process will then serve as indicators for future analyses.

To aid in the rejecting of less than ideal hypotheses the use a computer program, ACH 2.0.5, developed by Palo Alto Research Center (PARC) in collaboration with Richards J. Heuer will be employed, so as to minimize user error in the fabrication and analysis of the hypotheses-evidence matrix.

1.4 Assumptions, Preliminary Questions, and Preliminary Hypotheses

The purpose of this study is not merely to gain a better understanding of the impact that North Korea made supernotes could be used to aid the development of a nuclear arms program, the greater portion of many sources give preference to this objective, but to also identify further ramifications resulting in the manufacturing and dispersal of supernotes. The potential damage that can be yielded from such an operation could be greater than that of nuclear threat from a saber-rattling North Korea, especially in regards to the capacity of economic damage to the United States and ultimately the world.

By use of ACH this study will address the following questions:
- Does North Korea have the ability to create supernotes?
- Is the production of supernotes in North Korea responsible for the advancement of DPRK’s nuclear arm program?
- Does North Korea have ulterior motives for creating supernotes, other than for the advancement of a nuclear arms program?

1.5 Framework of Thesis

The thesis will be comprised of six chapters and ending with an appendix. The literature review will be presented in Chapter 2 and will describe North Korea’s economic need for supernotes, how supernotes are made, and how the international community is addressing the counterfeit threat. Chapter 3 will address which research method is the superior choice when presented with a high-risk situation and evidence of variable confidence; the choice between ACH versus more conventional methods steeped in intuitive processing and commonly practiced among intelligence and security agencies will be discriminated. Chapter 4 will exercise the verdict of the previous chapter and engage in the methodological application of the process, step-by-step. The initial aim and objectives of this study will be delivered, hypotheses will be developed, honed, and evidence diagnosticity assessed. Chapter 5 will present the findings of the hypotheses-evidence evaluation through a visual representation via a matrix. It is also in this section that modifications to hypotheses-evidence matrices will be displayed. Chapter 6, the final chapter, will provide a review of the results and provide critical findings, milestones, shortcomings, and recommendations for further research. The appendix will present a timeline of significant events since North Korea joined the United Nations.
CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Illicit activities North Korea are contributing to its state-run organized crime operations.\(^2\) One such illicit activity may include the fabrication and distribution of counterfeit US currency, which could be aiding in the funding of its nuclear arms program.\(^3\) In the event that North Korea is indeed using illicit means, such as supernotes, to fund nuclear arms development poses a grave threat; military weapons of mass destruction (WMD’s) could be used hostiley by North Korean forces, as well as be sold to dangerous nations or aggressive non-state actors.\(^4\) The profit yielded from selling supernote funded weapons technologies are re-circulated into North Korean state endorsed criminal enterprises.\(^5\) This process then repeats itself in a cyclical manner perpetuating the advancement of more WMD proliferation. Resuming the production of US supernotes could serve as a catalyst that accelerates the possibility of atomic disaster.

The availability of literature that provides a thorough analysis of supernotes and its link with North Korean nuclear arms development is limited. This scarcity of research, academic or otherwise, demonstrates the need for a thorough analysis of the supernote-WMD link. Differing opinions also contest whether North Korea is producing supernotes with a possible nuclear arms

\(^2\) *Korea Criminals - Pyongyang's Persistent Illegal Activities* (Jane’s Intelligence Review, 16 September 2010), p. 1-2, 5.
\(^5\) *Korea Criminals*, p. 4.
Data that is difficult to verify, inconsistent reporting, and varied viewpoints makes determining a North Korean supernote-nuclear arms link a challenging study.

This literature review will provide an examination of North Korea’s relationship between supernotes and their nuclear program in five parts. The first part will acknowledge why DPRK’s fractured economy necessitates the use of supernotes. Part two will focus on how supernotes are dangerous and how they are used to advance North Korean objectives. Parts three and four will address where and how supernotes are manufactured and what efforts have been used to confront the supernote threat. Lastly, part six will accommodate an alternative perspective that provides evidence that North Korea may not be the originator of the supernotes.

2.2 Why Would DPRK Use Supernotes?

The counterfeiting of hard US currency could stimulate the North Korean economy by having a compounding effect to produce more illicit moneymaking programs that further stimulate the North Korean economy and contribute to the development and proliferation of the country’s weapons and nuclear arms. North Korea’s economic climate is not favorable to gain self-sustaining strength as the country imports more goods than it exports and has billions of dollars in trade deficits. DPRK’s destitute and fractured economy is made possible by the loss of financial supporters, the need to support a luxury hungry elite class, and enduring unforgiving

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North Korea’s Current Economic Plight

North Korea is one of the world’s most restrictive economies and has been experiencing an on-going economic crisis for decades. Years of financial mismanagement due to underinvestment from foreign entities, material shortages, and poor maintenance has resulted in stagnated industrial power output for years; now at a fraction of pre-1990 levels. According to the CIA World Factbook, large-scale military spending draws off resources needed for investment and civilian consumption and frequent weather-related crop failures aggravated chronic food shortages caused by on-going systemic problems, including a lack of arable land, collective farming practices, poor soil quality, insufficient fertilization, and persistent shortages of tractors and fuel.

As North Korea does not publish reliable economic data to be released for the international community, the figures provided to federal agencies, such as the CIA for example, are compiled and extrapolated by third-parties (economic estimates for North Korea provided for CIA were made by Angus MADDISON in a study conducted for the OECD); therefore, making economic observations and forecasts speculative. Despite having less than accurate data, the information provided about North Korea is sufficient enough to determine that the economic stability of DPRK is weak and has not demonstrated significant economic growth since the pre-1990s.

8 Ibid.
9 Ibid.
10 Ibid.
According to latest estimates, North Korea has not been able to improve upon its economy. CIA assessments have identified North Korea’s GDP to be stagnant for the last several years with no indicator for improvement. For the previous 3 years, DPRK has been recognized as having a GDP of approximately $40 billion with no fluctuation.\(^{11}\) As estimates may vary, reports have shown inconclusive evidence of DPRK’s economic trade activity, however, recent CIA estimates over the previous several years indicate that North Korea exports slightly more than it imports, $4.7 billion versus $4.3 billion, but its current debts of more than $12 billion is a key factor preventing economic progress.\(^{12}\)

2.2.2. Fall of Soviet Union, Displaced North Korean Nationals, and Diminished Support

North Korea’s dependence on Soviet financial backing made DPRK more representative of a puppet regime that adheres its allegiance to the Kremlin than as an independent state. Historically, North Korea has served a buffer state that partitioned western influences south of the DMZ on the 38\(^{\text{th}}\) parallel. However, North Korean commercial trade volumes began falling in 1991 with the dissolving of the Soviet Union and collapse of the Eastern Bloc, North Korea’s primary trade partner at the time.\(^{13}\)

The loss of its primary financial sponsor yielded in DPRK reaching a minimum of $1.6 billion in commercial trade at the end of the famine period in 1998—less than 40 percent of the

\(^{11}\) Ibid.
\(^{12}\) Ibid.
\(^{13}\) Ibid.
1990 value of $4.2 billion. From 1990-2006, North Korea has accumulated a $10 billion trade deficit in its economic relations with China and South Korea. In 2003 alone, North Korea had an $835 million trade deficit. Additionally, North Korea has failed to pay back loans; accounting for a $12 billion accumulation of loan defaults, primarily to Soviet Russia, contributing to its inability to procure further loans on the international market.

Furthermore, not only was North Korea’s accumulated legitimate trade deficits were over $10 billion, it was increasing by around $1.2 billion a year. Yet, though the country had been unable to borrow money on international markets since the 1970s, it was managing to acquire enough hard currency to sustain its military components and ensure the “palace economy” of the Kim regime. It can also be added that East Asian specialist and envoy for former president G.W. Bush, David Asher, said, “We knew their economy was in deep trouble. What we couldn’t understand was why they didn’t seem bothered by sanctions, or want to cut a deal over their nuclear-weapons program. They should have been bankrupt, but they seemed to be surviving.”

The end of Soviet patronage marked the end of a political era and introduced greater economic hardship to DPRK, however, North Korea’s financial disparity would worsen during the years after the fall of the Eastern Bloc as Koreans in Japan were sending less money home. That source of income is a group known as Chongryon, or the "General Association of Korean

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14 Stephan Haggard and Marcus Noland, *Follow the Money: North Korea’s External Resources and Constraints* (Korea Economic Institute and the Korea International Institute for Economic Policy, 2008), p. 84.
15 Klaus W Bender, *Supernotes: Das Geheimnis der gefälschten Dollarnoten* (Frankfurter Allegemeine Zeitung, 2007), p.3.
16 David Rose, *North Korea’s Dollar Store* (Vanity Fair, August 5, 2009), p. 5.
17 Ibid., p. 5.
Residents in Japan." The Japan-based, pro-Pyongyang group links North Korea with a sizable community of ethnic Koreans living in Japan.\textsuperscript{19} Chongryon’s three-fold objectives are to: advocate pro-Pyongyang ideology among Japanese Koreans, collect money from Japanese-Koreans that are sympathetic to their cause and relay those funds to North Korea, and manage scores of businesses whose sole purpose is to generate cash for the North Korean regime.\textsuperscript{20}

The amount of money that Chongryon sent to North Korea in its prime isn't known for certain, but it is thought to have made up a substantial chunk of the national budget. By incorporating dubious elements in its funds collections DPRK cemented its foundations as a state-sponsored criminal enterprise since the establishment of the Chongryon in the 1950’s. Chongryon's business ventures included off-book pachinko parlors, pubs, prostitution rings, and real estate that produced over a billion dollars a year in revenue. At the peak of its money acquisition capacity Chongryon elements amassed about $25 billion in 1990.\textsuperscript{21} However, Chongryon is currently at a loss and was ordered by Japanese government to sell its headquarters and pay back outstanding debts acquired from the Japanese government in the late 1990s.\textsuperscript{22} By losing Chongryon North Korea was forced to surrender a multi-billion dollar bankroll that would further exacerbate the country’s long-term financial health.

\textbf{2.2.3. Increased Pandering for North Korea’s Growing Elite Class}

The Kim regime demonstrates a bipolar social disparity, where the top 1% are lauded with comforts that are not available to the general DPRK populace. This elite class with a deep

\textsuperscript{20} Ibid., p. 1.
\textsuperscript{21} Ibid., p. 2.
\textsuperscript{22} Ibid., p. 1.
hunger for luxury items has motivated DPRK financial management to try to cut costs by reducing the resources necessary to support these elites. However, the elite class is striated and, depending on social rank, must make sacrifices to support the country according to the “Military First” or Songun policy, proclaimed in 1999. Self-sufficiency, or Juche, is encouraged among the elites. For example, DPRK diplomats sent abroad by Pyongyang have been apprehended numerous times soliciting illicit contraband such as drugs and counterfeit currency to finance their political missions. Even more distressing for North Korea is that the number of affected elites grows larger.

Kim’s cadre of social elites is a growing body whose sumptuous appetite for material extravagance will increase indefinitely until the fall of the Kim dictatorship. This creation of a “court economy,” akin to that practiced by an absolute monarch sovereignty, has been the plight of many failed kingdoms. The court economy is responsible for approximately 30 to 40 percent of North Korea’s entire economy and is also referred to in a number of other ways, such as the Supreme Leader’s economy, the 3rd economy, the elites’ economy, the cadre economy, or the party (KWP) economy.

2.2.4. Droughts, Floods, Agricultural Distress, and Weak Electrical Infrastructure

Since 1990, North Korea has experienced twelve years of intermittent floods, droughts and famines, which killed over two million North Koreans, and caused 200,000 refugees to flee

24 Ibid., p. 75.
for survival. The North Korean government was desperate for any outlet of monetary income.\textsuperscript{26} Due to the prevalence of uncontrollable and unfortunate circumstances caused by these natural phenomena, North Korea’s economic and social state of affairs encouraged greater involvement in illicit activities. It was during this time that North Korea realized its potential to maximize profit from its illegal activities, funneling those monies not into the sustenance of its population through food and development, but into the research, development, production, and trafficking of missiles and nuclear-related technology.\textsuperscript{27}

The tragic events that transpired over the course of DPRK’s years of famine compounded by torrential deluges and parched earth could have been better handled had North Korea a satisfactory utilities infrastructure. North Korea is an energy starved nation whose natural resources are bountiful with geological ore, but lacks the vital petroleum reserves needed to sustain a country. Under terms of the 1994 Agreement between North Korea and the US, DPRK was to receive two nuclear energy reactors. South Korea’s Korea Electric Power Corporation agreed to build them at a cost of $4 billion at a site, Yongbyon, on the North Korean east coast, while Japan pledged $1 billion to the program to help cover additional costs. In accordance to the Agreement, the US shipped 500,000 tons of heavy fuel oil a year, worth $50 million, to North Korea for power generation.\textsuperscript{28} The agreement broke down in 2002 after it was revealed that even though North Korea had kept its promise to stop producing plutonium for warheads, it had started a new program to develop warheads with enriched uranium. North Korea is now

\textsuperscript{26} Rose, \textit{North Korea’s Dollar Store}, p. 5.
\textsuperscript{28} Donald Kirk, \textit{Nuclear North Korea: 6 Ways It Differs From Iran} (Christian Science Monitor, 5 December 2013), p. 2.
resuming work at Yongbyon, but faces severe problems due to international sanctions over the North's nuclear weapon program.\textsuperscript{29}

\subsection*{2.2.5. A Fractured Economy and a Cash Only Society}

DPRK’s faulty credit record and illicit activity history makes for a society where people tend to transact largely in cash, which in itself is not illegal, but in this market, it is in fact often the only way. The designator of “terrorist nation” excludes DPRK from contact with the US financial system. Only a handful of businesses are willing to accept the well-known risk that DPRK has defaulted on numerous loans and trade. Nigel Cowie, general manager of North Korean owned Daedong Bank, says that DPRK’s currency is largely non-transferable between nations, “so imported goods are bought and sold for hard currency.”\textsuperscript{30} Furthermore, North Korea’s reliance on cash transactions is that DPRK bank accounts are believed to be dispersed in various off-shore accounts so as to prevent the freezing of all North Korean monetary funds. An example of North Korea’s dependence on off-shore accounts involves the freezing of Banco Delta Asia of Macau funds; U.S. Treasury identified DPRK engaging in illicit banking with BDA.\textsuperscript{31}

\section*{2.3. How are Supernotes Dangerous to the US and the World?}

The production of US supernotes is conducive for the development of other illicit activities. Just as one hand washes the other, the collaborative efforts of North Korea’s state

\textsuperscript{29} Ibid.
sponsored crime aids in creating and sustaining new illicit ventures to further fund DPRK objectives. North Korea’s advancement of its military and nuclear undertakings is an increasing international threat that continuously demands greater monetary funding. In order to generate more revenue to fund its nuclear objectives North Korea has a growing client list that includes, but not limited to, rogue Middle Eastern nations.32

2.3.1. Regime Survival By Counterfeiting and Other Illicit Activity

North Korea may appear to have the familiar outlines of a typical corrupt autocratic regime, but it is different in that most nations with defunct leaders choose to engage in illicit activity for a monetary return. North Korea, on the other hand, engages in criminal acts as a matter of regime survival. Traditionally, organized criminals try to gain access to and leverage the authority of central governments, however, the opposite is true when observing the criminal element in North Korea, where the state is mandating the progression of illegal operations through state management.33

North Korea’s involvement in illicit activities to fund its nuclear program presents a security threat to the region and US interests. Some illegal methods to acquire additional funds for DPRK coffers include, producing and distributing counterfeit currency and goods, and wrongfully selling military equipment and technology, namely within the nuclear realm.34 North Korea has been engaged in proliferation activities, ranging from some role in the construction of a nuclear reactor in the Syrian desert, to missile sales, to murky “service contracts” with a range

32 Albright, p. 3.
33 Kan and Collins, *Criminal Sovereignty*, p. 2
of countries in conjunction with arms exports.35 Another example concerns DPRK’s relationship with A.Q. Khan, Pakistan’s chief nuclear scientist. Khan passed more than $3 million from North Koreans to a senior Pakistani army general in exchange for technical drawings and centrifuge schematics.36  

Pyongyang representatives would present the missile technology in exchange for AQK’s proprietary nuclear expertise, such as how to use centrifuges to enrich enough uranium for a weapon.37 Michael Hayden, former director of CIA, claims, “North Korea ask only for two things of its customers: first, can they pay, and second, can they keep a secret?”38

Although figures may vary evidence exists that North Korean state involvement in a variety of illicit activities and schemes yielded annual revenues from estimates as low as $500 million to $1 billion for the years 2005-2006.39 The following year numerous sources concur that the money collected is an estimated $1 billion earned annually.40 To better identify the scope of North Korea’s shady endeavors consider that in 2005, all of North Korea's legitimate exports totaled $1.7 billion, according to a CIA estimate.41 This, therefore, insinuates that North Korea’s black market revenues potentially make for as much as a third of its GDP.

The net monetary gains from under-handed operations are not to be taken lightly.

36 Albright, *Peddling Power*, p. 211.
Despite being in violation of the Non-Proliferation Treaty (NPT) North Korea accrued about $2.4 billion in cash for delivering SCUD-B missiles at the end of the Iran-Iraq war.\textsuperscript{42} Furthermore, in 2003, an official from US Forces Korea (USFK) claimed that in 2001, North Korea exported ballistic missiles worth $580 million to the Middle East.\textsuperscript{43} More recently, some sources report that North Korea has been exporting conventional military weapons to Burma (Myanmar) in contravention to current U.N. prohibitions against North Korea.\textsuperscript{44}

Another example of North Korea’s application of illicit activity for monetary gain includes a ship, during 1995, destined for North Korea was seized with cigarette paper printed with the Marlboro brand. This paper shipment was intended for use in North Korean counterfeit cigarettes, which contained enough paper wrappers to have an estimated street value of $1 billion.\textsuperscript{45}

The inconsistencies in the reported value of North Korean illicit activities is an unsettling weakness, as a solid number cannot be agreed upon. Furthermore, the gaps in available information make the value of supernotes questionable. Currency authentication specialists have confirmed that North Korea’s annual revenue from counterfeit bills were $15 to $20 million.\textsuperscript{46} Another source claims the reproduction of US currency over $10 million a year in

\textsuperscript{42} Counterfeiting of US Currency Abroad (Subcommittee on General Oversight and Investigations of the Committee on Banking and Financial Services, 1996), p. 122.
\textsuperscript{43} Dick K. Nanto and Liana Sun Wyler, North Korean Crime-for-Profit Activities. (Congressional Research Service, 2008), p. 3.
\textsuperscript{44} Ibid., p. 3.
\textsuperscript{45} Trimble, US Policy Options, p. 21.
\textsuperscript{46} Nanto and Wyler, North Korean Crime-for-Profit, p. 3.
counterfeit US currency.\textsuperscript{47} Despite that North Korea is acquiring millions of dollars from supernotes, US Secret Service spokesman Brian Leary opts to not sensationalize the seriousness of this shady money-making scheme by emphasizing that less than 0.01 percent of all the US dollars in circulation are fake.\textsuperscript{48} Leary also claimed that the Secret Service seized around $66 million in in supernotes for 2012.\textsuperscript{49}

\textbf{2.3.2. Growing WMD Threat}

The proliferation of North Korean missile technology and operational missiles carries great consequences, as the arms and nuclear technology could be sold to rogue nations or non-state actors that could upset regional and international security. This threat is becoming an increasing dangerous actuality as demonstrated by North Korea’s periodic testing of nuclear and ballistic arms. DPRK’s “Military First” or “Songun” policy demands that all available resources are to be given and utilized for the betterment of the state. For example, North Korea’s net exports during 1999 were $520 million. During the same year North Korea spent more than $200 million on its nuclear program. The percentage of funds acquired from exports were used for nuclear arm development is about 40\%.\textsuperscript{50}

However, due to North Korea’s poor economic performance, there is a strong fear North Korea will act too hastily in selling its nuclear technology to another country or a non-state actor. Evidence of some cooperation with Syria, Libya, and potentially Burma has alarmed national

\textsuperscript{48} Alan Yu, \textit{All About The Benjamins: US Introduces New $100 Note} (National Public Radio, 7 October 2013), p. 2.
\textsuperscript{49} Ibid., p. 2.
\textsuperscript{50} Kaplan and Madden, \textit{The Wise Guy Regime}, p. 36.
security experts. Furthermore, the Israeli bombing of a nuclear facility in Syria in 2007 raised concern about North Korean collaboration. 51 Despite speculation in the media about Iran-DPRK technologies and weapons proliferation, the official position of the US Intelligence Community is that North Korea and Iran are not cooperating on nuclear weapons development. 52

Although the greater consensus by the US intelligence community regards DPRK’s involvement in nuclear proliferation as not a concern of the highest priority, other federal agencies have acknowledged the potential threat. The US Department of the Treasury’s Office of Foreign Assets Control (OFAC), for example, has been closely following the activities of DPRK and has found that the national bank of North Korea, Bank of East Land (aka Dongbang Bank), is responsible for the direct funding of the Green Pine Corporation, a North Korean military arms manufacturer. 53 Furthermore, this same report released by the Department of the Treasury adds that North Korean banking and arms trading also involves transactions with Iranian financial institutions, including Bank Melli and Bank Sepah. 54

More recently, it has been found that DPRK’s chief weapons manufacturer, not to be confused with Green Pine, is Korea Mining Development Trading Corporation (KOMID) and has been involved in trading with Hong Kong Electronics, located on Kish Island, Iran 55, and

52 Ibid., p. 5.
54 Ibid.
Trans Multi Mechanics Co. Ltd. Of Taiwan.\textsuperscript{56} It can be determined that the Treasury Department identifies the interactions between these entities are aimed to destabilize the region and undermine the global nonproliferation regime.

DPRK’s need for economic stimulus is paramount. Its failed market has resulted in a desperate financial situation, where even the most unsavory of clients are welcomed so as to accommodate a potential sale and aid in rebounding the economy and further advance the nuclear arms program. The sale of military related supply and arms are amongst the top billings for DPRK and its client roster includes, but is not limited to: Peru, Burma/Myanmar, Iran (Shebab), Pakistan (Ghauri), Syria, Libya, Egypt (Scud), UAE, and Yemen.\textsuperscript{57}

It can be assumed that the resulting consequence from the production and circulation of bogus American dollars is the creation of a North Korean nuclear weapons enterprise, which should be profitable as long as sufficient demand exists. In addition to rogue states that may desire to obtain nuclear capabilities through North Korean enterprises, other customers, primarily terrorist organizations, will also demand to have access to North Korean manufactured WMDs. Terrorist organizations may view the acquisition of weapons of mass destruction as a religious duty and expend considerable effort on developing, purchasing, or stealing chemical, biological, radiological, and nuclear weapons (CBRN).\textsuperscript{58} These organizations might be first in line for a North Korean nuclear weapon, although their demand would be relatively low due to their limited resources. Notably, although non-aggressor states typically use nuclear weapons defensively so as to deter potentially hostile states, terrorist organizations would presumably use

\textsuperscript{56} Ibid.
\textsuperscript{57} Glyn Ford, \textit{North Korea on the Brink} (Pluto Press, 2009), p. 159.
\textsuperscript{58} Coe, \textit{North Korea’s New Cash Crop}, p. 78.
the weapons offensively.\textsuperscript{59} It can be assumed that DPRK illicit military arms trading is undeniable, as a counter-perspective could not be found.

\textbf{2.3.3. Undermining US economic stability with Fake Money}

An ulterior motive as to why DPRK is intent on producing supernotes is not just to amass a mighty military presence, but also destabilize the integrity of the US dollar. Although unlikely, an extensive influx of supernotes could weaken confidence in the US dollar and damage the US economy, with an impact felt throughout the world.\textsuperscript{60} North Korea’s demoralizing of US currency can be very effective and more threatening than an offensive attack with military forces, as the fear of an unstable US dollar strikes more anxiety than a bellicose DPRK.

The exact value of the dollar, in current world circulation, is debatable. Although various government offices and professional agencies report on the estimated value of total US currency circulating throughout the world, consensus claims that the total value of US currency is about $750 billion. On the other hand, the assessed value of North Korea manufactured supernotes is valued at $480 million.\textsuperscript{61} Although the ratio of supernotes to official federal currency is less than one-tenth of a percent, the implications for potential harm must not be discounted.\textsuperscript{62} However, any figure, especially one relating to forgeries of high quality, must be a guess. David Asher, head of the Treasury Department’s Illicit Activities Initiative (IAI), said that the total

\textsuperscript{59} Ibid., p. 78.; Sagan and Waltz, \textit{The Spread of Nuclear Weapons}, p. 3
\textsuperscript{61} Ibid., p. 15.; Kaplan and Madden, \textit{The Wise Guy Regime}, p. 39.
\textsuperscript{62} Ibid., p. 39; Yu, \textit{All About the Benjamins}, p. 2.
amount of North Korean printed counterfeit bills might be in the hundreds of millions.\textsuperscript{63} Estimates provided by the CIA, Secret Service, and ROK Intelligence Agency show that at least $45 million in US supernotes of North Korean origin are in circulation\textsuperscript{64}; although this reported amount is less than the $480 million value, as previously mentioned, one must also consider that the US Treasury Department regularly seizes counterfeit notes and destroys them. Also, the attrition of bills must also be considered, as printed currency is not indestructible.

Despite being one of the most, if not the most, counterfeited money in the world the dollar remains a “global currency,” with some countries adopting it as their own. If estimates of North Korean counterfeit bills hold true, it would constitute a small portion of currency in circulation. However, the disclosure of extensive counterfeiting could also depress the value of the dollar, leading some to believe that the scope of North Korea counterfeiting is being downplayed by United States officials.\textsuperscript{65} Also, “dollarized” economies, those nations that have adopted the US dollar as their own currency depend upon the integrity and stability of the US dollar. This is why counterfeiting activity has had a profound effect on not only our economy, but the international markets as well.\textsuperscript{66}

Compromising the legitimacy of US currency could yield in widespread economic crises; some banks would be unwilling to accept legitimate US banknotes, or could charge additional fees when exchanging $100 bills into local currency.\textsuperscript{67} For instance, after supernotes

\textsuperscript{63} Royce, \textit{Gangster Regime}, p. 10.
\textsuperscript{64} Ibid., p.5.; Nanto and Wyler, \textit{North Korean Crime-for-Profit Activities}, p. 5.
\textsuperscript{66} Ibid., p. 1.
\textsuperscript{67} Royce, \textit{Gangster Nation}, p. 15.
began appearing in Ireland in the 1990s, Irish financial institutions declined to exchange $100 bills. Likewise, in Taiwan in 2004 and Peru in 2005, financial institutions temporarily refused service on $100 notes after supernotes were found circulating within each respective nation.68

An earlier event occurred in 2004, where Taiwan’s central bank issued a warning that supernotes had been turning up on the island. In a panic, Taiwanese banks were overwhelmed by customers seeking to return $100 bills totaling hundreds of millions of dollars, most of them perfectly genuine. “It was effectively a run on the dollar,” says David Asher. “No one knew if their money was real or fake.”69

The economic prosperity endured by the US dollar is admired, so much so that the attempts to replicate the notes, especially $100 notes makes it the most forged American bill.70

To make matters worse, the $100 notes also last an average of eight years, significantly longer than others, because they're not used often.71 Even worse, other sources, namely the US Federal Reserve, place the circulation life of the $100 bill at 15 years,72 almost double the estimated circulation life compared to Smith. As the circulation life of the supernote can be determined to be a minimum of 8-15 years the introduction of newly designed bills to detour counterfeiting is merely a small obstacle, as DPRK has more than a decade to liquidate its current stocks of supernotes and update its printing presses before overwhelming suspicion engulfs North Korea’s production of counterfeit US currency.

71 Ibid., p. 2.
2.4. Where and How are Supernotes Made?

North Korea is using a moneymaking model more popularly practiced by crime syndicates and has made crime a vital component of its economy. Central Committee Bureau 39 (also known as Office 39) of the Korean Workers’ Party (KWP) is a state apparatus that is responsible for the manufacturing and distribution of counterfeit currency, drugs, and merchandise. This office is essential in developing and maintaining alternative methods to stimulate the influx of monetary capital into North Korea’s threatened economy.

Office 39 is one section in a consortium of other devious offices that is estimated to bring between $500 million to $1 billion a year or more with assets totaling about $5 billion. Just as Office 39 is responsible for operating large-scale ventures, such as drug and cigarette factories and the printing presses that produce counterfeit banknotes, sibling offices combine bankrolling, logistics, and other factors into the illicit activities list. For example, Office 99, raises funds by selling missiles and other weapons. These military components were made possible via illicit activities: sales by Office 39.

2.4.1. Components of Supernote Fabrication

North Korean manufactured counterfeit $100 US bills look a lot like the genuine article; so much so that with such accuracy and precision only the most highly trained analysts can decipher the authenticity of the note, hence, the moniker “supernote”. Highly sophisticated

73 Kan and Collins, Criminal Sovereignty, p. 1, 2.
75 Rose, North Korea’s Dollar Store, p. 4.
methods and tool are used to manufacture counterfeit notes, primarily US $100 bill.76 These include the purchase very expensive and difficult to obtain hardware and talent. The supernote is so convincing in its quality that it is often identified as equivalent in look and feel to the genuine article.

This currency reproduction operation has been labeled as the most sophisticated in the world, as described by the US Secret Service.77 The counterfeit bills are manufactured using similar devices and methods employed by the US Bureau of Engraving and Printing.78 Supernotes, just like authentic US currency, are produced on a special intaglio press so that their intricate design is raised above their surface; microprinted features, 1/42,000th of an inch high, found on real dollars are reproduced exactly on counterfeit ones.79 The counterfeiting production materials used to create the supernotes also includes high-tech equipment from Japan, paper from Hong Kong, and ink from France.80 However, the expense to obtain the necessary hardware to print supernotes is greater than the annual net revenue from counterfeit US bills. According to one source, using Nigeria as a recent model, a new money printing operation has an initial cost of $135 million.81 Yet, North Korea has the vital components to unofficially print US currency, as it was a customer to the same vendors as the US. For example, DPRK has a $10 million intaglio printing press, the same used by the US Bureau of Engraving and Printing.82

77 Ibid., p. 13.
78 Rose, North Korea’s Dollar Store, p. 1.
79 Ibid., p. 6.
81 Elich, North Korea and the Supernote Enigma, p. 10.
82 Kaplan and Madden, The Wise Guy Regime, p. 36.
The Bureau of Engraving and Printing uses Giori intaglio presses for the engraved portions of its bank notes, and an offset press for the background colors; supernotes use the same technology. The raised ridges caused by intaglio printing is a delicate effect that ordinary counterfeiters can’t duplicate.

North Korea purchased an intaglio press from the Swiss firm Giori in the mid-1970s. This is regarded as an indication that DPRK has the technology available to potentially print supernotes; however, due to technical advancements in printing, the equipment necessary to update the machinery could not be obtained by the DPRK, due to defaulted loans for the Giori press. For that reason, Giori ceased shipping spare parts to North Korea many years ago. Other components used by both DPRK and US include the paper, which is made from southern US cotton exclusively by Crane Dalton, and the top-secret reflective safety ink formula, made by French company Sicpa.

Since 1996, the US has tried to outwit the supernote manufacturers by twice changing the design of $100 bills, but the counterfeiters have kept pace. Conversely, it could also be said that the North Korean supernote is responsible for increasing the sophistication of redesigned US currency. The Bureau of Engraving and Printing designs new notes every seven to 10 years to

84 Ibid., p. 2.
85 Ibid., p. 2.
86 *The Mystery of the Supernotes* (Düsseldorfer Institut für Außen- und Sicherheitspolitik, 2010), p. 2.
89 Royce, *Gangster Nation*, p. 16.
stay ahead of counterfeiters. The new designs are part of a multiyear initiative to implement the most ambitious currency redesign in US history.\textsuperscript{90} On the other hand, should the US not be able to continuously stay a step ahead of North Korean supernote design modifications, supernotes are expected to remain in circulation for the foreseeable future making it possible for the DPRK to continue to use any existing stocks of counterfeit supernotes.\textsuperscript{91}

\textbf{2.5. How the US and the Global Community Addressed Supernotes}

The failure of the 6-Party Talks has presented an increased number of incidents involving North Korean acts of aggression and hostility, especially in regards to nuclear arms testing.\textsuperscript{92} These recurrent transgressions are yielding elevated attention from the international community. The aim is that with the application of enough diplomatic pressure North Korea will not only silence their persistent sabre rattling, but also terminate the proliferation of WMDs, as well as halting DPRK illicit activities, such as supernote production.\textsuperscript{93} However, the good intentions of tough love, demonstrated by the implementation of executive orders, resolutions, and sanctions, have often backfired.

\textbf{2.5.1. Sanctions and Failure}

Diplomatic meetings with DPRK are not easily coordinated, as political tensions frequently flare. The number of attempts to merely initiate diplomacy talks makes for a lengthy

\begin{itemize}
  \item \textsuperscript{90} Ibid., p. 16.
  \item \textsuperscript{92} Ford, \textit{North Korea on the Brink}, p. 191.
\end{itemize}
list; however, recent attempts (namely, the 6-Party Talks) have not yielded in providing any headway in the development of peace accords, denuclearization, trade reform, or reducing the occurrence of supernotes. Older UN Security Resolutions and the 1994 Agreed Framework legislated against the production and trade of nuclear technologies and arms, however, no provisions were made regarding supernotes until the second term of the Obama administration.

The best made intentions often do not become successful. Just as well-intended sanctions are frequently drafted to restrain prohibited activity, unforeseen circumstances commonly ensue. For example, China has repeatedly increased its economic engagement with North Korea after an imposition of sanctions, thus negating their impact. After U.N. sanctions were first implemented in 2006, Chinese exports to North Korea actually increased by 140 percent by 2009. In response to North Korea’s sinking of the Cheonan, South Korea cut off most inter-Korean trade, worth approximately $300 million annually. Yet in the following year, China increased its trade with Pyongyang by 29 percent, from $2.68 billion to $3.47 billion.99

Furthermore, by ignoring imposed sanctions DPRK is acquiring additional profits by acting as “straw-purchasers” for rogue nations. For those nations that are under international scrutiny for potentially dangerous acts or sponsoring of terrorism, DPRK has exhibited willingness to acquire lengthy lists of goods in exchange for intellectual property and services, but primarily money. Therefore, it can be assessed that diplomatic mandates, embargoes, and

94 Ford, North Korea on the Brink, p.186, 201.
95 Ibid., p. 191.
96 Ford, North Korea on the Brink, p. 167.
98 Ibid., p. 7.
99 Ibid., p. 7.
sanctions do not work, as rogue nations will forgo these protocols.100

2.5.2. Diplomatic Shortcomings

The Bush administration aversion of DPRK and labeling of “Axis of Evil” did not aid diplomatic relations between the two nations, but rather worsened them. Bush’s rejection of Clinton’s 1994 Agreed Framework halted aid to DPRK and yielded in a sour backlash as North Korea would later withdraw from the NPT in 2003 and initiate a series of nuclear arms tests in 2006, 2009, and 2013.101 Furthermore, Bush scrapped the 1994 Agreed Framework due to DPRK’s reaffirmed trade and aid agreements with China and Russia.102 The realignment of these former US adversaries are a difficult obstacle to cross, as trust between these nations are superb and the potential for a future military conflict with these nations has not been discounted.103 These mentioned diplomatic shortcomings are emblematic reactionary behaviors that tend to be exhibited when threatened.

Like his predecessor, G.W. Bush, current US president Obama is choosing to maintain a rigid position when dealing with DPRK-US relations. Similar to G.W. Bush, Obama faces a political dilemma where he cannot placate DPRK and convince North Korea to retract its point of view on illicit activity and nuclear diplomacy. Furthermore, according to the official White House webpage, “it is unclear whether these links [between supernotes and DPRK nuclear

100 Albright, Peddling Peril, p.160.
103 Ibid., p. 32.
armament] still persist.”

The Blue House, the political executive residence and office of ROK, exemplifies similar behavior in its approach with DPRK diplomacy. However, Seoul’s diplomatic position when dealing with North Korea is not as hard-nosed, as compared to the US or UN. For example, South Korea’s “sunshine policy” toward North Korea is politically unstable and is enticing ROK to provide DPRK with greater lenience and patience regardless of North Korea’s historical record for diplomatic failure. It seems as though South Korea is walking delicately over egg shells. To better illustrate South Korea’s passivity with DPRK, press reports indicate that a closed briefing given to the National Assembly by the NIS in February 2006 indicated that while North Korea was involved in counterfeiting in the 1990s, South Korean intelligence had no information on such activity post-1998. However, recent reports indicate that the United States has provided Seoul with evidence of North Korean counterfeited 2001 & 2003 series $100 notes and has determined that $140,000 in bogus currency confiscated by South Korean authorities in 2005 was produced and distributed by North Korea. Even though US government officials provided definitive evidence proving DPRK is engaging in counterfeiting, the intelligence was discarded, as it may hinder reconciliation with DPRK. The Treasury officials who traveled to Seoul in January 2006 to discuss the counterfeit issue reportedly did not receive a welcome reception.

The political deadlock between North Korea, its regional neighbors, and the US is not a

105 Royce, Gangster Nation, p. 8.
106 Ibid., p. 8.
unique situation. Diplomacy with DPRK and the rest of the world has always presented challenges, nonetheless benevolence and charity has presented an opportunity in regards to North Korea’s desperate financial situation. As North Korea concedes for assistance, thereby breaking a national tradition, Juche, or national self-reliance, DPRK is presenting a position of vulnerability. Humanitarian aid, especially provided from NGOs, has provided a diplomatic outlet that is exposing North Korea to global modernity, whether it wants it or not. Although NGOs provide less than 2% of total aid, these organizations are providing more than sustenance, but rather laying a framework for future international relationship and policy-building.107 NGOs are diplomatic intermediaries that serve as cultural ‘ice-breakers’, as mentioned by Hazel Smith.108

On the other side of the coin, Kim’s regime regularly seizes humanitarian aid for propagating North Korea’s Songun policy. By demonstrating humanitarian vulnerability as a disguise North Korea is manipulating international charities, thus inhibiting the diplomatic process.109 DPRK’s potential transition from a radical nation poised for increased nuclear armament to a modern nation of nominal international threat must first overcome the stigma of corruption found rampant throughout North Korean bureaucracy.110

Regardless of which mask DPRK decides to wear, so as to attempt to gain greater supplemental aid, many delegates of NGOs or government sponsored aid organizations refuse to assist North Korea. DPRK continues to demonstrate its position as a potential nuclear threat

107 Ford, North Korea on the Brink, p. 118.
108 Smith, Hungry for Peace, p. 213.
109 Ibid., p. 133-134.
110 Ibid., p. 203.
with numerous nuclear arms tests from the 1990’s to present. Former US Secretary of State Hillary Clinton stresses that, “the US will never have normal, sanction-free relations with a nuclear armed North Korea.”

2.5.3. UNSCR 2094 of March 2013

The most recent resolution made by the UN Security Council was a unanimously passed resolution, UNSCR 2094, that strengthens and expands the scope of United Nations sanctions against the Democratic People’s Republic of Korea by targeting the illicit activities of diplomatic personnel, transfers of bulk cash, and the country’s banking relationships, in response to North Korea’s third nuclear test on 12 February 2013. This newest of resolutions recalls its previous relevant resolutions, including resolution 825 (1993), resolution 1540 (2004), resolution 1695 (2006), resolution 1718 (2006), resolution 1874 (2009), resolution 1887 (2009) and resolution 2087 (2013).

From these resolutions, two are of primary importance: UNSCR 1718 and 1874. Resolution 1718’s principal provision prohibits North Korea from conducting future nuclear tests or launching a ballistic missile. It calls for the country to suspend its ballistic missile program and to completely abandon efforts to pursue a nuclear weapon. The resolution included a range of sanctions designed to prevent North Korea from continuing to develop these programs. Some of these restrictions include, but are not limited to banning a range of imports and exports to North Korea and imposing an asset freeze and travel ban on persons involved in the country’s


nuclear program. Such imports and export include military arms, munitions, and weapons hardware, as well as some luxury items.113

Resolution 1874 was passed in response to North Korea’s underground nuclear test on May 25, 2009, which was “in violation and flagrant disregard” of the previous Security Council Resolution from 2006. The resolution strengthened previous measures against the North Korean weapons development program by tightening sanctions on additional goods, persons, and entities. 114 Furthermore, this resolution also demands that DPRK retract its statement of separating from the NPT.

UNSCR 2094 drafted as response to North Korea’s third nuclear test and snubbing of UNSCR 2087 on February 12, 2013. Like previous resolutions, this version further increased the breadth of imposed sanctions; yet unlike previous resolutions, UNSCR 2094 specifically aims to make it more difficult for North Korea to make further progress in its nuclear and ballistic missile programs by hindering its access to hard cash and technological equipment needed to build weapons and pursue uranium enrichment.115 Furthermore, by drawing upon and increasing the scope of UNSCR 1718, the new financial sanctions of UNSCR 2094 targets the blocking of access of the Kim regime to bulk cash transfers, preventing illicit DPRK activities, and restricting ties to international banking systems.116 Although monitoring systems are used to detect and address the violations of these sanctions by North Korea have been described

114 Ibid.
115 Ibid.
116 Ibid.
within the latest resolution, there is no protocol to implement further disciplinary measures other than seizing and/or destroying contraband material.117

The US has adopted similar resolutions through Executive Orders and Congressional House Resolutions. The Office of Foreign Assets Control (OFAC) of the US Department of the Treasury released on May 6, 2011 an overview of sanctions with respect to North Korea describing Executive Orders 13466 (June 26, 2008), 13551 (August 30, 2010), and 13570 (April 18, 2011). The demands made by President Obama addresses the restrictions contained in the UNSC resolutions, namely UNSCR 1718 and 1874. Similar to UNSC resolutions, Obama’s Executive Orders also reaffirm that North Korea is engaged in the proliferation of nuclear, chemical and biological weapons. Furthermore, these orders also acknowledge North Korea is trafficking military arms and related material, facilitating North Korean procurement of luxury goods, and engaging in illicit activities that involve or support the Government of North Korea or its senior officials, including money laundering, the counterfeiting of goods or currency, bulk cash smuggling, and narcotics trafficking.118 However, unlike UNSC resolutions, the US Executive Orders includes criminal charges and punishment; should perpetrators violate any US Executive Order they will be disciplined with fines ranging up to $1,000,000 and individuals may also face imprisonment up to 20 years. In addition, civil penalties of up to $250,000 may be imposed administratively for each violation.119

It can be assumed that the implementation of sanctions has restrained North Korea into an

117 Ibid.
119 Ibid.
economic vice, where the only relief from this diplomatic pressure is dismantling of its nuclear program and seizing of illicit activities. However, there is a possibility that North Korea is not employing some illicit activities, specifically not producing supernotes, to fund its nuclear armament program. This is a reoccurring subject worth addressing.

2.6. Perspectives Not Concurrent with the Dominant Paradigm

The controversial argument as to whether or not North Korea is engaged in an illicit activities operation, which involves the production of supernotes to fund its nuclear armament program, can be debated in two parts. Multiple sources claim that the possibility for North Korea to effectively produce supernotes is an impossibility due to its economic restraints.120 As the production cost to manufacture supernotes is exceptionally high, it can be assumed that DPRK does not have the financial capital to engage in counterfeiting operations. Furthermore, it can also be argued that due to North Korea’s diplomatic track record, it does not have the ability to procure the necessary hardware to print supernotes. The second argument identifies a conspiracy theory, where the CIA is responsible for the fabrication of supernotes and is placing the liability on North Korea.121

It can be contended that North Korea’s frail economic state is not conducive for the manufacturing of supernotes; DPRK’s monetary resources are not sufficient to fund a counterfeit

currency operation. Swiss federal criminal police, has publicly questioned whether North Korea is even capable of producing supernotes.\textsuperscript{122} In May 2007 the Swiss Bundeskriminalpolizei, which is on the lookout for counterfeit currency demanded that Washington present more evidence as the Swiss doubt that North Korea is responsible for the production of supernotes.\textsuperscript{123} Although current numbers of seized supernotes to date exceed $100 million, the Swiss police agency's doubts are based in part on the small quantity of supernotes that have been seized prior to their 2007 inquiry; estimates by the US Secret Service report that about $50 million worth of supernotes were seized between the years of 1989-2008.\textsuperscript{124}

It is probable, but not very possible, that the US Secret Service is confiscating the majority of supernotes. In the event that this were true the manufacturing of North Korea made supernotes would be impossible, as the cost of the printing hardware would exceed the value of seized supernotes. A single new Giori printing machine costs more than the total value of supernotes found so far. For example, Nigeria recently opened its second printing plant in Abuja at a cost of more than $135 million for hardware alone.\textsuperscript{125} Furthermore, North Korea may not have the technical expertise to produce the notes. According to the Swiss Bundeskriminalpolizei, "…its [North Korea’s] printing presses date back to the 1970s, North Korea is today printing its own currency in such poor quality that one automatically wonders whether this country would

\textsuperscript{122} Kevin G. Hall, \textit{US Counterfeiting Charges Against N. Korea Based on Shaky Evidence} (McClatchy Newspapers, 10 January 2008) \url{http://www.mcclatchydc.com/2008/01/10/24521/us-counterfeiting-charges-against.html} (accessed 10 December 2013).
\textsuperscript{123} Ibid.
\textsuperscript{124} Ibid.
\textsuperscript{125} Elich, \textit{North Korea and the Supernote Enigma}, p. 10.
even be in a position to manufacture the high-quality supernotes”.
Furthermore, the unique microprint found on the $100 bill was reproduced on the supernotes so perfectly that even under a microscope no difference is distinguishable. The gravure of an intaglio printing plate requires many months intricate handwork and demands tens of thousands of dollars per plate; for security reasons, this craft is a highly-confidential process. Therefore, an assumption could be made that the possibility of DPRK producing supernotes can also be invalidated. North Korea cannot procure the necessary material resources due to its financial crisis and trade sanctions and lacks the talent to maintain printing facilities.

On the other hand, in the event that North Korea has the necessary hardware to engage in supernote counterfeiting, the fundamental question arises as to why North Korea is not making more supernotes than its current numbers. According to the Swiss Bundeskriminalpolizei, “What defies logic is the limited, or even controlled, amount of ‘exclusive’ fakes that have appeared over the years. The organization could easily circulate tenfold that amount without raising suspicions.” It is believed that North Korea purchased an older Giori model printing press during the 1970s, which could produce $50 million in about 5 hours. Additionally, according to German banknote specialist Klaus W. Bender, the rate at which North Korea has kept pace with the modifications made to US engraving plates since 1989 is difficult to explain,

126 Hall, US Counterfeiting Charges Against N. Korea, p. 3.  
127 Elich, North Korea and the Supernote Enigma, p. 10.  
128 Ibid., p. 10.  
129 Elich, North Korea and the Supernote Enigma, p. 10.; Hall, US Counterfeiting Charges Against N. Korea, p. 3.  
130 Ibid., p. 10.  
131 Ibid., p. 10.
as these alterations to bill design are an expensive process that does not fit within DPRKs economic means: “The counterfeiters immediately implemented each and every change to the 100-dollar bill.”132 Furthermore, it can be argued that North Korea cannot be responsible for the manufacturing of supernotes, as the return on investment would not be economically feasible. North Korea earns 40 percent of the face value of all notes counterfeited.133 If one allocated the $50 million in seizures over the 16-year period, applied the 60 percent discount, and considered that many supernotes would be lost, it would imply revenues of only $1.25 million per year.”134

The presence of supernotes is an undeniable reality and if North Korea cannot be held liable for counterfeiting US currency one must question who is responsible for the manufacturing and distribution of supernotes. According to currency expert Klaus Bender, the CIA is one such entity that could be held accountable for manufacturing supernotes: covert funds for black operations are produced by a press in a city just north of Washington, D.C. and the CIA then conveniently blames the supernote-dilemma on Pyongyang.135 Others could be responsible, such as China or another large entity with enough financial capital to fund a supernote operation, however, not enough literature was found to support such claims. Considering the literature that was reviewed, it can be assumed that dissenting opinions that argue North Korea does not have the capacity to manufacture supernotes are marginal.136 The existence of supernotes, whether DPRK manufactured or not, is a confirmed fact.

132 Bender, Supernotes., p. 4.
134 Haggard and Noland, Follow the Money, p. 6
135 Bender, Supernotes, p. 5.
136 Ibid., p. 1; Elich, North Korea and the Supernote Enigma, p. 10; Haggard and Noland, Follow the Money, p. 6; Hall, US Counterfeiting Charges Against N. Korea, p. 3.
CHAPTER 3: METHODOLOGY

3.1 Research Question, Aim, and Objectives

Research Question:

This thesis aims to answer two questions: Is North Korea manufacturing supernotes? If so, to what extent are supernotes financing North Korea’s nuclear program?

In attempting to reach this aim the application of ACH will meet the following objectives: the development of multiple hypotheses in an attempt to explain a supernote-nuclear arms program link, assessing evidence with verifiable sources (academic journals, governmental sources, news outlets, and texts from specialists in the study of currency production and nuclear studies), providing a diagnostic weighing hypotheses against evidence, and refining the evidence for inconsistencies and sensitivity. Should the acquired evidence prove to be substantial enough to critically verify if North Korea has the means to produce supernotes by means of ACH, then a secondary ACH evaluation will determine if supernotes are directly, partially, or not responsible for DPRK’s financing of its nuclear arms program. A summary of alternatives that were considered and why they were rejected will also be addressed. The milestones developed throughout the process will also be noted and then serve as indicators for future analyses.

To aid in the rejecting of less than ideal hypotheses the use a computer program, ACH 2.0.5, developed by Palo Alto Research Center (PARC), in collaboration with Richards J. Heuer, will be employed, so as to minimize user error in the fabrication and analysis of the hypotheses-evidence matrix. Furthermore, by using this computer program, the amalgamation of qualitative and quantitative analyses will be addressed. ACH is designated as a structured method that adheres to a deliberate scientific method of assessment, with the application of ACH 2.0.5 the
merger of qualitative and quantitative measures are combined to stimulate systematic investigation via weighted inconsistency scales; credibility of referenced sources, relevance of provided evidence, and multiple alternative hypotheses. The combination of these factors will provide for a decision for the best fit hypothesis. By further studying the specific numerical weight of inconsistency differentials even greater fine tuning of the applied evidence can be manipulated so as to better isolate lynchpin, or hypothesis driving key variables.

3.2 Data Collection, Reliability Assessment, and Limitations

The sources used to obtain the data for hypotheses generation and evidence gathering consisted of books, academic journals, and websites. Hardcopy texts were acquired from the University of Texas at Arlington and El Paso, the Public libraries of Arlington and El Paso, as well as, Southern Methodist University. Books about North Korean economic adversity and its evolving nuclear risk were not difficult to acquire, however, hard copy literature about North Korean manufactured supernotes were not easily found. The brunt of supernote research laid upon academic journals, which did not provide much more information than books. However, government and news sources found on the internet proved to be invaluable.

Whether it concerned books, academic journals, or websites, special attention was paid to the perceived reliability of the source and academic contents. Every source of information that provided critical evidence to support or reject a hypothesis was checked for reliability by comparing its data with other sources. The websites have only been used if the source of the information was clear and was deemed reliable for the kind of information sought. All websites accessed for the sake of research were either official websites of the governments or from well-reputed news agencies and think-tanks.
3.3 The Traditional Method of Intelligence Analysis

The application of structured analytical methods for complex intelligence analysis is a method of contention within intelligence agencies, where intuitive processing is still the superior technique. Non-structured intuitive approaches is considered the norm in the intelligence community. The justifications to maintain this technique are numerous, as it is disputed that the structured techniques of analytical processing cannot take into account for the infinite number of variables involved in complex problems and that intuition is better.

On the other side of the coin, greater implementation of structured techniques, such as ACH, point out that intuitive processing is inherently flawed as it seldom acknowledges appropriate attention to the provided information. Due to the qualitative nature of intelligence analysis intuitive processing cannot be discounted. As qualitative information does not deal with statistical information and the analyst must assess a great deal of information by applying subjective intuitive processing, however, in doing so the analyst is subjugated to the perils of cognitive limitations that expose vulnerabilities in judgment and understanding. Although structured techniques may have shortcomings, primarily the time involved in the application

138 Ibid.
139 Ibid.
process, they have been scientifically proven to prevent intuitive pitfalls and are gaining greater prevalence within the intelligence analysis domain.\textsuperscript{141}

Despite the differences between the two prevailing schools of structured versus intuitive analyses it can be argued that the one must go with the other. Structured technique expert and former CIA analyst Morgan D. Jones asserts that structured technique aid in intuition development as structured processing constructs mental paths that led to alternative considerations.\textsuperscript{142} Failure to consider alternatives is the leading cause of flawed or incomplete intelligence.\textsuperscript{143} Furthermore, structured analytic methods provides for creative outlets with experience. As rational processing becomes well-exercised, it requires less mental effort and can therefore complement analytical intuition.\textsuperscript{144}

3.4 What is ACH?

Analysis of Competing Hypotheses is an analytical instrument developed in the 1970’s by Richards J. Heuer, a former CIA methodology specialist. Heuer dedicated a process of decision making via scientific means by acknowledging the inherent strengths and weaknesses of the human mind and how it processes information.\textsuperscript{145} ACH concentrates on a process-oriented method that facilitates in reducing cognitive biases and aids in preventing unwanted surprises that would otherwise be unforeseeable.\textsuperscript{146} Furthermore, because of its thoroughness, it is

\begin{itemize}
\item \textsuperscript{141} Khalsa, \textit{The Intelligence Community Debate Over Intuition Versus Structured Technique}.
\item \textsuperscript{142} Ibid.
\item \textsuperscript{143} Heuer, \textit{Psychology of Intelligence Analysis}, p.7.
\item \textsuperscript{144} Khalsa, \textit{The Intelligence Community Debate Over Intuition Versus Structured Technique}.
\item \textsuperscript{145} Heuer, \textit{Psychology of Intelligence Analysis}, p. 95.
\item \textsuperscript{146} Ibid., p. 95.
\end{itemize}
particularly appropriate for controversial issues when analysts want to leave an audit trail to show what they considered and how they arrived at their judgment.147

ACH’s adherence to a scientific process is appropriate for critical or controversial issues when analysts cannot afford to be wrong. Intelligence analysis cannot guarantee a correct solution to prevent a potential calamity. ACH does, however, ensure an enhanced process of analysis via a series of steps to aid in the deterrence of common analytical biases. Analytic biases are easy to form and extraordinarily difficult to overcome.148 The wrong mental mindset is based on first impressions, partial information, and sometimes faulty assumptions, which then gains credence as analysts encounter more data that reinforces their mindset.149 Impressions often remain with the analyst’s thoughts even after the evidence has been discredited.150 Given time pressures, it is easy for an analyst to jump to conclusions and as more information becomes available, the analyst is increasingly inclined to select that which supports their lead hypothesis and ignore or reject information that is inconsistent with the lead hypothesis.151 This mindset is derived from a need to impose order on our environment; analysts seek and often believe they find causes for what are actually accidental or random phenomena.152 Furthermore, analytical hazards tend to embrace “groupthink,” where the analyst assimilates information to agree with

147 Ibid., p. 95.
149 Pherson, p. 1.
150 Heuer, Psychology of Intelligence Analysis, p. 115.
151 Pherson, p. 1.
152 Heuer, Psychology of Intelligence Analysis, p. 127.
This analytical hazard frequently incorporates the “availability” rule, where analysts judge the probability of an event by the ease with which they can imagine relevant instances of similar events or the number of such events that they can easily remember.\textsuperscript{154}

Avoiding these analytical hazards increases the chances of obtaining a better explanation of past and present events, and forecasting future events while simultaneously leaving a record of evidence applied in the decision making process and how this evidence was interpreted.\textsuperscript{155} Special attention can be used to prevent these biases by challenging key assumptions, identifying and overcoming mental mindsets, being aware of the absence of evidence, generating alternatives, and reducing the chance of surprise.\textsuperscript{156} The methodical protocol of structured analysis can seem cumbersome with lots of rules and preventative measures to ensure in a superior evaluation, however,

\section*{3.5 What is Intuitive Analysis?}

Process oriented analyses, such as ACH, encourage a deliberate, conscious activity that is guided by rational thought. Reflective surveying of all alternatives and the listing of pros and cons are carefully weighed to provide a range of probabilities that can be systematically explained so as to reduce uncertainty and minimize analytical biases that would otherwise distort the inquiry process and collection of evidence.\textsuperscript{157} However, this is not the case with intuitive

\begin{footnotes}
\footnotetext{153}{Pherson, p. 2.}
\footnotetext{154}{Heuer, \textit{Psychology of Intelligence Analysis.}, p. 161}
\footnotetext{155}{Heuer, \textit{Improving Intelligence Analysis with ACH}, (Center for the Study of Intelligence, 1999) p. 2.}
\footnotetext{156}{Pherson, p. 2.}
\footnotetext{157}{Gerd Gigerenzer, \textit{Gut Feelings: The Intelligence of the Unconscious}, (Penguin Group, New York, 2007), p. 4.}
\end{footnotes}
analysis, where a ground-up approach is discounted in lieu for a top-down method; with
intuition, a satisficing explanation is most commonly generated prior to the gathering of critical
evidence: analysts think they already know the best solution.\textsuperscript{158} Contemporary psychologists
identify intuition as being systematically flawed because it ignores information, violates the laws
of logic, and is the source of many human disasters.\textsuperscript{159} In other words, intuition is the
intelligence of the unconscious, without thinking, where the satisficed hypothesis is likely to
work in the situation.\textsuperscript{160}

To better understand intuition is to also identify it without comparison to process
oriented analyses, such as ACH. Recent advances in cognitive science and artificial intelligence
suggests that the irrational implications of intuition are no longer outside the realm of scientific
study.\textsuperscript{161} Intuitive processes evolve from long experience and learning and consists of a mass
of facts, patterns, concepts, techniques; such mental impressions are deemed formal
knowledge.\textsuperscript{162} Intuition is not the opposite of rationality or rigorous analytical processing, nor is
it a random process of thinking. It is a sophisticated form of reasoning honed over years of
experience with a solid and complete grasp of details of a particular subject.\textsuperscript{163} However, unlike
analytic processes, such as ACH, intuitive analysis is a ‘synthetic’ psychological function, where
fragmented data and experiences are amalgamated into an integrated picture, or a holistic

\textsuperscript{158} Ibid., p. 17.; Heuer, Improving Intelligence Analysis with ACH, p. 4.
\textsuperscript{159} Gigerenzer, p. 17.
\textsuperscript{160} Ibid., p. 19.
\textsuperscript{161} Naresh Khatri and H. Alvin Ng, The Role of Intuition in Strategic Decision Making, (Human
\textsuperscript{162} Herbert A. Simon, Making Management Decisions: The Role of Intuition and Emotion, (The
\textsuperscript{163} Ibid., p. 59.
representation of reality transcending rational thought.  

Intuitive processing can be argued to be classified as a substantial research method by adhering to six properties: subconscious, complexity, tempo, divorced from emotion, and subject to bias, and its involvement in all decision-making. The first in this series of six identifies is that intuition is drawn without conscious thought, from an internal reservoir without rationality, and without understanding of how answers are derived. Although inexplicable, intuition deals with systems that are more complex than those that can be figured out in our conscious minds and permits an overcoming of limits of rationality in unstable environment. This aids in the explanation that intuition’s inherent unconscious and complex nature is automated in a succession of smooth and quick bursts, compressing years of experience and knowledge into split seconds; it can also be identified as an economy of effort. Compounding upon the previous factor, it has been debated that emotional responses inhibit the quickness or economy of intuition. Intuition is innately non-emotional, as factors such as fear, anxiety, and wishful thinking retard intuitive progression and would negate the process. Overwhelming evidence demonstrates that intuition is fraught with cognitive biases; yet it is also argued that intuition’s similarity to rational analysis is merely that both are based upon perceptions and assumptions that are not necessarily accurate and correct. However, the use of intuition is central to all

164 Ibid., p. 59.
166 Simon, p. 60.
167 Ibid., p. 60.
168 Khatri and Ng, p. 61.
169 Ibid., p. 62.
decisions. In consideration to rational analysis, analytic processes cannot be used exclusively as analysts are always influenced by intuition, namely in data acquisition and interpretation.170

3.6 Three Key Contrasting Elements: ACH vs. Intuitive Analysis

Unlike conventional intuitive analysis methods, ACH refines consideration onto critical evidence that focuses more attention on alternative explanations and brings out greater potential awareness in any situation that is poor in data, but rich in possibilities. This ground-up approach of evaluating alternative hypotheses provides additional guidance for modification in future evidence collection and research, therefore lessening the stem of uncertainty in the absence of plentiful evidence. Such a contrast in analytical methodology, when compared to intuitive analysis, can be best acknowledged by addressing three key differential elements, as noted in the following:

**Three Key Elements that Differentiate ACH and Intuitive Analysis**

- ACH processes multiple possibilities, rather than finding evidence for the first most favored solution. This ensures that alternative hypotheses receive equal treatment.

- ACH identifies and emphasizes items of evidence that have the greatest diagnostic value in judging the relative likelihood a hypotheses. In regards to intuition key evidence consistent with multiple hypotheses are rarely considered and often ignored.

- ACH involves seeking evidence to refute hypotheses. The most probable hypothesis is usually the one with the least evidence

170 Ibid., p. 62.
against it, not the one with the most evidence for it. Conventional intuition entails looking for evidence to confirm a favored hypothesis. 171

Although there is no reassurance that the application of ACH can promise to consistently provide correct answers, it can guarantee that a proper process of analysis was executed via a rational and systematic means that detours common analytic pitfalls, thus increasing the chances of obtaining an affirmative response. Furthermore, with the employment of a deliberate means of processing, this procedure delivers an audit trail that demonstrates the diagnosticity of each item of evidence. 172 Should criticism in judgments develop the audit trail provided could be studied by noting the matrix, where specific areas of disagreements can be brought to attention and the origins of dispute can be cited to an ultimate source. 173

3.7 Is ACH Methodology Superior to Intuitive Analysis?

As is often the case within the intelligence community, the information available is typically ambiguous and incomplete, which requires a research method that validates an appropriate process of analysis. ACH addresses a complex problem through a process of well-reasoned, analytical judgment. Conventional intuition tries to confirm a favored hypothesis without validating a non-biased process of hypothesis generation and elimination; whereas, with ACH any hypothesis that can’t be refuted needs to be taken seriously. 174 Applying intuition seeks the most likely solution for a complex issue with available information from the point of view.

172 Ibid., p. 101.
173 Ibid., p. 109
174 Ibid., p. 37.
view of whether or not it supports this answer. Contrary to intuitive analysis, where evidence is gathered after generating the most probable solution, ACH follows the fundamental precept of scientific method by rejecting or eliminating hypotheses, while tentatively accepting only those hypotheses that cannot be refuted. The most likely hypothesis is the one with the least evidence against it, not the one with the most evidence for it. This simple switch in perspective forces the analyst to ask questions and seek evidence that would not otherwise be considered.\textsuperscript{175} By using ACH, analysts are required to set aside preconceptions and seek for inconsistencies in the data that may indicate a flaw in their reasoning. Disproving hypotheses with ACH, rather than satisficing a conclusion, is an exercise in evaluation and process management, thus reducing cognitive limitations and analyst bias.

Intelligence analysis is a complex application, which demands critical analytical judgment that does not guarantee certainty. In other words, there are no slam dunks in forecasting future events no matter how reassuring evidence may prove; as was the case in 2002, when former CIA chief George Tenet remarked when commenting on the certainty that Iraq had WMDs. Despite the preponderance of intelligence information that encouraged the Bush administration to invade Iraq, erroneous methods in evidence acquisition and analysis ultimately yielded a false positive as no biological, chemical, or nuclear weapons were found.

By applying an analytical model that provides an unbiased methodology for weighing judgments false positives due to cognitive biases can be reduced. Analysts opting not to use a methodology based on a process-oriented approach will often work intuitively to satisfy the most likely explanation and then work backwards, where the ‘correct’ explanation is the first one that

\textsuperscript{175} Ibid., p. 37.
is consistent with the evidence.\textsuperscript{176} The satisficing approach consequence is that numerous explanations can be consistent with the evidence and, unless every reasonable alternative is considered, an incorrect conclusion may be derived. Another frequent problem with using the satisficing strategy includes the failure to generate appropriate alternative hypotheses. Furthermore, application of satisficing tends to support conclusions that are often not thoroughly interpreted from multiple facets. Also, intuition fails to acknowledge the consistency of the evidence: the pertinence of evidence and its relationship between hypotheses.\textsuperscript{177}

The application of an unbiased methodology from the collection of the best available information for uncertain indicators is the ultimate goal for intelligence analysts, however, minimizing predisposed notions tends to be rather difficult, as it is a natural predisposition that with the absence of certainty analysts seek solutions that may best fit a particular model. Accurate intelligence analysis requires accurate perceptions. Yet human perception is fraught with common pitfalls.\textsuperscript{178} According to Heuer, these consequences of biased perception are multifold:

- “We tend to perceive what we expect to perceive”; meaning that, by human nature, greater amounts of unambiguous information is needed to recognize unexpected phenomena. Perception is not only influenced by the content in which it occurs, but analysts are also predisposed and pays particular attention to an unconscious list of information and organizes this data due to past experiences,

\textsuperscript{176} Heuer, Improving Intelligence Analysis with ACH, p. 29, 35.  
\textsuperscript{177} Jǿsang and Pope, Analysis of Competing Hypotheses Using Subjective Logic, (University of Queensland, 2005), p. 2  
\textsuperscript{178} Heuer, Psychology of Intelligence Analysis, p. 7.
professional training, and cultural and organizational norms. This tendency of perception of expectations is the chief inhibitor of non-biased research.

- “Mind-sets tend to be quick to form but resistant to change...new information is assimilated to existing images.” As analysts form ideas they are biased in favor to continually seeing that idea; the mind-set or expectation concerning a certain phenomenon is used to mold future phenomena. 179

The culmination of these most common of analytical pitfalls reaffirms that the initial exposure of inaccurate perceptions continues to influence future behavior and decision making even after more and better information is presented. When provided with a plethora of information it is the duty of the analyst to decipher if that data is relevant or not.180 This is a difficult task, yet the use of a pragmatic management system will acknowledge the degree and source of uncertainty, re-examine key problems non-incrementally, and expose alternative points of view. Judging the relevance and value of evidence to determine possible outcomes demands a formal model that not only minimizes analytic bias, but also addresses the diagnosticity of evidence by eliminating analytical predispositions and also limiting the amount of necessary evidence.181

3.7.1 More Information is Not Necessarily Beneficial

179 Ibid., p. 8-15.
180 Jósang and Pope, p. 1.
181 Ibid., p. 1.
ACH aids in preventing an over-saturation of evidence that is not helpful in either favoring or refuting the generated hypotheses. It is intuitive that with a greater preponderance of information a greater margin of confidence can be obtained so as to more assuredly define a satisfactory hypothesis. Information used in this context refers to the availability of material that is applied in judgment construction. However, when addressing this dilemma in regards to ACH, less is often more.

Intelligence analysis, similar to other professions requiring detail oriented data analysis, must identify the most relevant items from a vast array of evidence to make a best judgment. For example, a physician observes a patient and can make a large list of data that aids in making a medical diagnosis, however, a much of the data may not be critical in determining the diagnosis. The physician uses their specialized knowledge to develop hypotheses that would explain the patients’ symptoms, conduct tests to collect additional information to test their hypotheses, and ultimately make a diagnosis. Data collection and management is focused narrowly on pertinent information.\textsuperscript{182}

An anecdote to better elaborate the case of the physician having to make the proper decision for treatment without demanding a barrage of tests to obtain a proper diagnosis, requiring only the most critical information, involves a young boy and his preventable, yet untimely death. The story is from psychologist and decision making expert Gerd Gigerenzer.\textsuperscript{183}

\textsuperscript{182} Heuer, \textit{Psychology of Intelligence Analysis}, p. 63.  
\textsuperscript{183} Gigerenzer, \textit{Gut Feelings}, p. 20, 21.
An Anecdote of a Doctor’s Decisions: When Too Much Information is Not Helpful

A boy named Kevin was pale, withdrawn, and was drastically underweight for his age. He refused to eat and multiple maladies. His father moved out of the house and his mother missed feeding him or tried to force-feed him junk food. A young doctor learned of the child and took charge. He felt uncomfortable handling the frail child and limited any invasive tests. A more caring environment was provided, where the child began to eat and his condition improved. By attending to the most critical indicators that were responsible for the boy’s ill health the young doctor provided a diagnosis with a promising recovery.

However, the young doctor’s superiors, unconvinced by his treatment without formal medical protocol, demanded that a team of specialists investigate Kevin ailments and develop a refined diagnosis. Kevin was subjected to a barrage of invasive tests that proved to be inconclusive. Kevin, fell into deep anxiety under the stresses of these tests and relapsed into poor health. He stopped eating again and to counter his absence of appetite a medical specialist placed Kevin on a special intravenous feeding regime while resuming testing. Kevin was overwhelmed and soon died without yielding any medical cause of death.

Figure 3-1. Doctor’s Anecdote - Less is More

Another example to better explain how an over-abundance of information may not necessarily be beneficial to intelligence analysis is Heuer’s comparison to horserace handicapping. The number of variables to determine a winning race horse is a lengthy list, where only a small select few indicators from a hundred are commonly considered. Testing the success rate of handicappers’ winning horses found that as more items of information were analyzed confidence in choice making grew, yet their accuracy remained consistent. More
information to assess possible winning factors did not necessarily yield in a greater rate of
winning accuracy, but merely aided in the level of confidence. Therefore, the assumption that
more information makes for a better determination of a hypothesis is not essentially a golden
rule, but rather, “it seems that the explicit formulation of hypotheses directs a more efficient and
effective search for information.”

Understanding the relationship between the amount of information and accuracy of
judgment can briefly be best explained in two parts. The first is that after the minimum amount
of information is acquired, seeking additional information does not always aid in the
improvement of the accuracy in the determination of the correct hypothesis. Secondly, from a
psychological perspective, judgments are generally determined by a few dominant factors and
not by a systematic interpretation of gross information; “analysts actually use much less of the
information than they think they do.”

The formulation of savvy information collection to yield in superior hypothesis
construction illustrates a major distinction between expert and novice problem solvers, the
former employs “forward reasoning”, rather than “backward reasoning”, typical of intuitive
thought. Forward thinking applies a small set of indicators from data to diagnosis, with a
structured process-based model for hypotheses construction. Therefore, any quandary that
involves the identification and manipulation of large data sets must take into account the
analysts’ knowledge base to ascertain the critical components of information, as well as its

184 Heuer, Psychology of Intelligence Analysis, p. 55.
185 Ibid., p. 52.
organization in the applied problem-solving model. Taking this psychological perspective into account, the ACH model of analysis demonstrates the need for a ground-up, or “forward reasoning”, approach demanding that the employment of critical indictors be applied, while discounting superfluous aggregate data that would only pander the confidence of the analyst. Even worse, the insistence of acknowledging and attempting to use non-critical data would go beyond confidence adulteration and yield in a skewed assessment and would create false hypotheses.

3.8 Is ACH the Proper Evaluation Tool for Studying Supernotes?

It is all too enticing to exercise only intuitive thought and proclaim that a direct link exists between the persistent reoccurrences of supernotes associated with North Korea and then seek evidence that deduces counterfeit currency as a means of financing the rogue nation’s nuclear program. Yet, the absence of evidence to substantiate such a deduction could yield in the formation of an incorrect hypothesis. Intuition may aid in the development of a hypothesis that would correctly address the relationship between supernotes and North Korea’s nuclear armament, however, the degree to which it may be helpful would be diminutive and consciously so, as the preponderance for intuitive applications cannot be audited and are overwhelming unreliable. The decision to employ a rigorous structure-oriented analytic approach would best fit this scenario due to its situational logic, where the development of a North Korean nuclear program funded by counterfeit US currency is unique and cannot be readily applied to concrete theories or compared to other situations.

Intuition is develops from experience, however, research about the North Korean supernote-nuclear dilemma is a new occurrence, thus disqualifying intuition from being a superior method in the development of accurate and plausible hypotheses. Rather, on the other end of the spectrum, such a situation involving multiple unknowns, with a prevalence of inaccurate information and non-comparative history, would require a more sophisticated method grounded in structure-oriented rational thought analysis, namely ACH.

3.9 The ACH Process

Most analysts intuitively seek their most likely answer or hypothesis, then look at the available information from the point of view of whether or not it supports their answer. In the event the evidence does not validate the analysts’ initial hypothesis, the analyst either rejects the evidence as misleading or develops another hypothesis and goes through the same procedure again: this is a satisficing strategy. ACH It takes far greater mental agility than listing evidence supporting a single hypothesis and can be accomplished with a step-by-step outline.

Step one identifies the possible hypotheses to be considered. Generating the correct hypothesis is vital in garnering the correct answer. Selecting specific hypotheses for further evaluation must be screened to be disproved from those that are merely unproven. An unproven hypothesis merits no evidence to be correct, whereas, a disproved hypothesis is negated by evidence that it is wrong. The elimination of unproven hypotheses yields in biases in subsequent analysis. Furthermore, it is during this step that a group of analysts with different

187 Heuer, Psychology of Intelligence Analysis, p. 96.
188 Ibid., p. 96.
189 Heuer, Psychology of Intelligence Analysis, p.96-98.
perspectives brainstorm various the possibilities. This step, however, was omitted as knowledgeable analysts with compounded knowledge of North Korea, supernotes, and nuclear arms proliferation were not readily available. In place of fellow brainstorming analysts the implementation of decision making models were used. Hypotheses generation was initiated using a combination of two methods that include problem restatement and a reasoning checklist.

Problem restatement aided in defining the hypotheses. The goal of problem restatement is to expand our thinking about the problem, not to solve it, with a five-step process: paraphrasing the hypotheses, reversing the meaning of the hypotheses, restating the hypotheses in a larger context, redirecting the focus, and asking why of the initial problem statement. For example, when formulating a hypothesis that addresses whether or not North Korea is producing supernotes using Jones’ method the process starts by paraphrasing the problem: “How are supernotes used to develop North Korea’s nuclear program?” is adjusted to “How is North Korea’s nuclear program using supernotes?”; trying to say the same thing with different words puts a slightly different spin on the meaning and encourages new insight. The next step turns the problem on its head, where the initial problem is reversed to ‘How is North Korea funding its nuclear program without supernotes?’ Step three broadens the focus: ‘How else is North Korea using supernotes?’ Step four changes the focus: ‘How can we eliminate supernotes?’ The initial problem, ‘How are supernotes used to develop North Korea’s nuclear program?’ is issued a why query and responds, ‘because supernotes are being used to fund North Korea’s emergent nuclear program’. The restatement to the response would be: ‘How to prevent supernotes

190 Ibid., p. 96.
192 Ibid., p. 64.
funding of North Korea nuclear development?’. Repeat the why query: ‘because, an emerging North Korean nuclear power is an international threat.’ Repeat the restatement: ‘How North Korea becoming nuclear power?’ Repeat the why query: ‘because, North Korea is using illicit means to fund its nuclear program.’ Repeat restatement: ‘How to halt North Korean illicit activities?’. These steps apply a series of why questions to formulate a new problem based on the answer and is repeated until a richer understanding of the problem emerges; this divergent technique stimulates additional alternatives that may have otherwise been overlooked.\textsuperscript{193}

The reasoning checklist further refines the problem and formally develops hypotheses with an eight-step process that identifies the purpose of the reasoning. This checklist includes: thinking about the purpose or objective of what is to be accomplished, stating a concise question to identify the purpose, justify assumptions, consider alternative points of view, seek evidence, clarify key concepts, draw a conclusion, and consider consequences.\textsuperscript{194} Similar to the Problem Restatement method, the Reasoning Checklist applies a divergent strategy to seek additional insight, however, unlike the Jones method Paul and Elder’s Reasoning Checklist also implements a convergent strategy by drawing conclusions from inferences.\textsuperscript{195} Upon brief consideration it was determined that dividing the ACH process into two sets would best serve in assessing the possible production of supernotes by North Korea and determining the extent these supernotes are linked to North Korea’s nuclear program. Implementing the reasoning checklist yielded three alternative hypotheses for the first ACH analysis: North Korea is printing supernotes, North Korea is NOT printing supernotes, and North Korea is deceiving and denying its supernote production.

\textsuperscript{193} Ibid., p. 66-67.
\textsuperscript{195} Ibid., p. 13, 17.
operation.

The second step of the ACH process is to make a list of evidence for and against each hypothesis; this section refers to all the aspects that influence hypothesis judgments.  

Such influencing factors should not be limited to concrete evidence, but also personal assumptions or logical deductions. Each hypothesis is addressed by what must have happened or is still happening to make the hypothesis true. Furthermore, analysts must pay special attention to the absence of evidence; what is omitted but should be present to make the hypothesis true.

To ensure that the assessment does not rest on flawed hypotheses, rechecking assumptions can be valuable.  Writing down one’s assumptions forces analysts to think critically about each assumption; as assumptions are studied some assumptions will fall apart, transforming themselves from Key Assumptions to Key Uncertainties. Another advantage of performing a key assumptions check is that while assumptions are mostly correct, the process forces the analyst to consider under what circumstances they might not hold up, thereby sensitizing them to data they otherwise might have ignored.

The third ACH step is the most analytical and is the step that makes ACH differ from intuitive approaches to intelligence analysis. The combination of hypotheses and evidence are married in a matrix in horizontal rows and vertical columns. By working horizontally across the matrix the evidence will judge the consistency of each hypothesis. The weighing of evidence to

196 Heuer, Psychology of Intelligence Analysis, p. 99.
197 Ibid., p. 99.
198 Pherson, p. 2.
199 Ibid., p. 2.
200 Ibid., p. 2.
each hypothesis provides diagnosticity, the key difference between ACH and intuition. Should a particular evidence item prove to be consistent with all of the hypotheses, it has no diagnostic value.

Step four refines the matrix, reconsiders the hypotheses, identify gaps in the evidence that may need to be filled to refute hypotheses, checks the consistency of evidence ratings, and solicits additional input. It is in this section that the analyst identifies and compares different types of evidence, with a special focus on the most diagnostic evidence. By refining the matrix consider rewording and combining hypotheses, so as to make for finer distinctions. Reconsidering evidence also occurs in this step; adding more evidence that may influence the updated hypotheses or deleting evidence that is of non-diagnostic value.

Step five compares the conclusions about the relative likelihood of the hypotheses. Work down the matrix for each hypothesis and note all of the evidence for or against each hypothesis; the analyst must seek to disprove, rather than confirm hypotheses. Note the hypothesis column with the least number of negative indicators. The hypothesis with the fewest negative connotations is most likely to be true and greater numbers of negative connotations is more likely to yield a hypothesis that is not true, whereas a hypothesis that is inconsistent with all evidence should be rejected. Positive connotations, indicating that evidence is consistent in

202 Ibid., p. 100-102.
203 Ibid., p. 103.
204 Ibid., p. 103.
205 Ibid., p. 103.
206 Ibid., p. 103.
207 Ibid., p. 104.
accepting a hypothesis, although important, is not as important as rejecting it. The hypothesis with the most number of positive connotations does not necessarily make it the most likely to be true. The matrix serves as a record and provides an audit trail demonstrating how conclusions were made.208

Steps six, seven, and eight are not as technically involved with matrix development. Rather, it is in these sections that alternative explanations and interpretations that may cause evidence to be incomplete and misleading are considered.209 Critical assumptions and how the conclusions are dependent upon the validity of these assumptions are reviewed considering how conclusions would be affected if key evidence or arguments were wrong or subject to a different interpretation.210 Conclusions are then reported, which also includes a discussion of alternatives that were considered and why they were rejected, as well as, including the possible need of contingency or fallback plans in case one of the less likely alternatives turns out to be true.211 Lastly, the last step identifies milestones for future observation that may indicate events are taking a different course than expected. As situations may change, do not regard the conclusions as a permanent statement that is inflexible; as more information is presented hypotheses also change.212

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208 Ibid., p. 103-105.
209 Ibid., p. 105.
210 Ibid., p. 106.
211 Ibid., p. 107.
212 Ibid., p. 107.
CHAPTER 4: RESULTS

Two ACH applications critically compared the hypotheses, whether DPRK is producing supernotes and the extent to which supernotes finance North Korea’s emerging nuclear arms threat. The generation of matrices was comprised of 17 evidence indicators that were assessed for Matrix One and 20 for Matrix Two. The process was applied by using the PARC ACH 2.0.5 computer software system, which provided a weighted inconsistency score based on the above mentioned factors.

In tabulating the data, the disproval of hypotheses rather than proving them aided in selection of the most reasonable hypothesis. Negative scores furthest away from zero are to be disproved as these hypotheses have more inconsistencies from evidence indicators; likewise, scores closer to zero are not as likely to be disproved, as they have less inconsistency markings in the hypothesis column of the matrix. The greater the difference of the weighted inconsistency scores between hypotheses will aid in the significance of variability and confidence in hypothesis selection; larger differences in scores between hypotheses suggest polar variances and small comparative differences in weighted inconsistencies suggest greater similarities between the hypotheses. Furthermore, these scores aid in providing conclusions about the relative likelihood of each hypothesis as scores farther away from zero have greater inconsistencies when compared evidence indicator to hypothesis.

Each evidence indicator was graded with three confidence types that would identify evidence as a fact, logical deduction, or assumption. Evidence labeled as a Fact are well-supported with multiple sources that is generally highly credible and relevant. Logical Deduction is not as well-endowed as evidence identified as a Fact. For the sake of this study,
Logical Deduction must be supported by sources that provide nodes of differing information that when combined creates a conclusion based on what you already know from the provided sources. Labeling each evidence indicator, therefore, adds pertinence to key arguments, as to whether it requires special attention or not. Although not all evidences can be facts, however, although logical deduction and assumptions may not receive as much analytical attention caveats, or warnings, can be identified with evidence indicators and serve as milestones for other analysts to observe. Assumptions are unproven remarks with reduced credibility. More supported assumptions increases its credibility.

Credibility and Relevance also assess the diagnosticity of evidence and hypotheses with ranking systems, so as to better identify evidence that may require closer analysis. Credibility is assessed to determine reliability and credibility of indicator evidence and is measured in high, medium, and low settings. Higher ratings provide more consistent and honest evidence. When labeling an evidence indicator for credibility, high ratings are given to evidence that has a proven history of providing accurate information regularly, such as a well-respected periodical for example. Consistent delivery of accurate news is only half of credibility measurements, as the information must trustworthy in order to be considered worthy to of high markings. A low credibility rating is often misrepresentative and is not well supported by other sources.

Relevance, unlike credibility, determines the importance or gravity of the evidence. Just like with credibility, relevance is also measured in high, medium, and low rankings. These rankings classify evidence indicators with an affective capacity; in other words, a high ranking has a greater inclination for influence, whereas a low ranking has little or no affective value and few analysts would care to give it any mind. One assesses the relevance of the evidence to the
question being analyzed, not relevance to each individual hypothesis. The analyst asks whether this evidence is central to the analytical judgment that must be made or only indirectly related.

4.1 Data Set One

After tabulating the data into the matrix the results yielded scores of -23.656 for Hypothesis 1, H1, that North Korea is not printing high quality US currency and -4.828 for Hypothesis 2, H2, the contrast alternative to H1. Hypothesis 3, H3, that North Korea is engaging in deception and denial scored -10.0. As the score for H1 is considerably farther from zero than H2, it can be assessed that H2 had more tabulated inconsistencies and fewer consistent scores in its hypothesis column. The large disparity between hypotheses strongly suggests that the provided evidence indicators has yielded in a definitive difference between the hypotheses. Hypothesis number 2, H2, is the most reasonable hypothesis, as it has the smallest inconsistency score. In addition, it should also be noted that H3’s D&D motive had a weighted inconsistency score that was about half that of H1; therefore, according to the inconsistency scores North is most likely to be printing supernotes and is twice as likely to engage in acts of denial and deception that would hide and misrepresent North Korea’s responsibility for supernotes. Note the appendices for charts, tables, key assumption checks, and detailed evidence lists.

4.2 Data Set Two

After tabulating the data into the matrix the results yielded scores of -17.78 for Hypothesis 1, H1, that supernotes are not responsible for the financing of North Korea’s nuclear arms program, -3.41 for Hypothesis 2, H2, that supernotes are directly responsible, and -.71 for Hypothesis 3, that supernotes are partially financing North Korea’s nuclear program. As the score for H1 is considerably farther from zero than H2 or H3, it can be assessed that H2 had
more tabulated inconsistencies and fewer consistent scores in its hypothesis column. The large
disparity between H1 versus H2 and H3 strongly suggests that the provided evidence indicators
has yielded in a definitive difference between hypotheses. Hypothesis number 3, H3, is the most
reasonable hypothesis, as it has the smallest inconsistency score.
CHAPTER 5: ANALYSIS

Not all questions have definitive answers and in the absence of certainty ACH helps differentiate between plausible answers, while objectively and systematically explaining the most likely explanation by disproving hypotheses that are the least consistent when assessed with the evidence. This study identified two sets of hypotheses to be analyzed. The first was a qualifying analysis of ACH to assess whether North Korea is manufacturing supernotes and the second analysis that assessed that degree of supernote-nuke involvement. This first ACH study demonstrated that the evidence was diagnostically most consistent with the two hypotheses and proved that North Korea is, in fact, generating supernotes. The second ACH analysis determined the grade of responsibility, that the supernotes are used in the financing of North Korea’s nuclear arms program. Additional information detailing which sources were used for particular evidence indicators, as well as evidence lists and ACH matrices can be found in the appendices.

5.1 Is North Korea Capable of Producing Supernotes?

In regards to the first ACH analysis, the similarities of the evidence can be grouped into categories of relevance, of course the most important being evidence numbers E1, E2, and E3: North Korea has supernote paper (E1), paper (E2), and ink (E3). These lynchpins that acknowledge that the mechanical hardware and additional components to make supernotes is most vital in ensuring supernote production. The absence of any of these evidence factors would immediate negate North Korea’s capacity to print supernotes. In regards to credibility, sources that provided this evidence came from a combination of academic journals, news outlets, and governmental sources.
Other indicators that could be acknowledged as less important include E9 and E4 [E9: DPRK does not have printing talent; and E4: DPRK cannot afford supernote printing hardware]. Although these factors are important in counterfeiting, the assessment yielded a consistent marking for the E4-H1 heading, as the relative importance of acquiring the necessary funds to purchase supernote quality counterfeiting machinery is less relevant than actually having it [H1: DPRK is NOT printing supernotes]. Furthermore, state funded black enterprise has more expendable funds for grand operations that would otherwise be impossible for private non-state actors. An inconsistent marking can be found in the E9-H2 heading, as it was reasoned that the procurement of the physical hardware and printing material is more difficult to obtain than a skilled money fabricating specialist, therefore the low relevance marking [H2: DPRK is printing supernotes].

Evidence factors E5-E7 acknowledge the economic motivators for printing supernotes, with the most critical of these indicators inquiring whether or not North Korea is producing supernotes to act as a catalyst for the advancement of other state managed illicit activities [E5: DPRK delegates transferring supernotes abroad; E6: DPRK cash only economy; E7: Supernotes are catalysts for illicit activity]. Such activities include, but are not limited to the counterfeit production of commercial goods, or more importantly fraternizing with rogue nations or terrorists sects by dealing military grade weapons, munitions, and nuclear arms technologies. E10 encompasses these activities with the greatest diagnostic disparity between hypotheses, namely H1 versus H3 [E10: DPRK needs supernotes to purchase military arms/technology from rogue nations; H3: DPRK has supernote deception and denial motives].

The last piece of evidence mentioned, E8, addresses the disregard of North Korea’s manufacturing of supernotes during a US Department of the Treasury meeting with South
Korean government officials on, as noted by Edward Royce in his staff report to House Foreign Affairs Committee chairman Tony Lantos. The forsaking of this evidence by ROK was so as to minimize diplomatic friction in the peninsula. It was during this time that North Korea badgered the US and asserted that its presence in the sixth round of six-nation talks would be non-existent unless financial sanctions imposed in 2005 would be lifted. South Korea’s decision to turn the other check was an exercise in diplomatic patience and to prevent any aggravation of potential hostile acts from DPRK.

As each of these evidence factors are evaluated, the most diagnostic evidence about whether North Korea can print supernotes is its possession of machinery to make counterfeit bills. These are the hypotheses driving key variables, or lynchpins. Without these variables North Korea would be unable to create supernotes. However, the variables that could be identified as another lynchpin, but not as dynamic as compared to E1-3, is factor E7 supernotes are a catalyst for the propagation of additional illicit activities. It can be argued that without the stimulus of supernotes the cycle of acquiring additional monetary funds from state sponsored illicit activities could not be collected as quickly, and thus preventing an expedited mission of nuclear arms development.

From an alternative perspective, should the other hypothesis be true, where North Korea is not producing supernotes, the evidence must be confounded for evidence factors E1-E3. Although some reports claim that the hardware currently possessed by North Korea to manufacture supernotes is obsolete and unable to create counterfeit bills overwhelming evidence from multiple sources of various types proves the contrary. The possibility that North Korea

213 Kevin G. Hall, *US Counterfeiting Charges Against N. Korea Based on Shaky Evidence* (McClatchy Newspapers, 10 January 2008) http://www.mcclatchydc.com/2008/01/10/24521/us-
has not, and is not currently, manufacturing supernotes is a possibility and should not be discounted.

5.2. Are Supernotes Responsible for the DPRK’s Nuclear Program?

Part Two of this two-part analysis compares three hypotheses: first, supernotes are not responsible for North Korea’s development of nuclear arm programs; second, supernotes are directly responsible; and third, that supernotes are partly responsible. In this second analysis fourteen pieces of evidence are held to be of importance. The evidence disproves both H1 and H2 with greater inconsistencies than H3, therefore, making H3 the superior choice among the three [H1: Supernotes are NOT financing DPRK's nuclear program; H2: Supernotes are DIRECTLY financing DPRK's nuclear program; H3: Supernotes are PARTIALLY financing DPRK’s nuclear program].

Similarly to the first analysis that determined whether or not North Korea has been producing counterfeit bill this second part can also cluster evidence indicators into influential themes. The most instrumental and relevant groupings includes evidence numbers E8, E10, and E12; these are the lynchpin or hypothesis driving variables [E8: State Sponsored Illicit Acts, E10: Business Allies with Rogue Nations, E12: DPRK Actively Printing Supernotes]. These indicators express direct involvement with state managed illicit activities of the highest caliber and demonstrate that supernotes are an effective vehicle to perpetuate the cyclic funds generation to finance a quickly maturing nuclear threat. The relevance of these indicators are deemed
mostly as high and originate from varied sources: books, government bodies, and academic journals. Queries that may doubt the credibility and relevance of these indicators resulting in misunderstandings are inhibited by the prevalence of information that historically catalogues North Korea’s exploits within grossly illicit behavior. However, should evidence indicators E8, E10, and E12 prove to be misleading the most justifiable explanation would be that government managed black enterprises fail to exist within North Korea; if it were to be proven that supernotes are not responsible for DPRK’s nuclear programs development then the accompanying behavior of illicit activities would more than likely also fail to exist.

Evidence indicators E1, E2, E3, E4, and E7 share a common premise that North Korea’s fractured economic status is crippled due to a combination of large trade deficits, subjugation to years of austere environmental conditions that ruined its already flailing agricultural harvests, and loss of monetary sponsors, primarily Soviet Russia after 1990 [E1: DPRK Trade Deficit; E2: DPRK Agriculture Crisis; E3: Loss of Soviet Aid; E4: Less Chongryon Aid, E7: Cash Driven Economy]. The result of such economic crises has made for a broken relationship with the globe, as the international community perceives North Korea to be too great of a financial risk to be worth investing, thereby creating a cash driven economy. Economists agree that the combined financial failures of North Korea are exacerbated with its pursuit to maintain its Juche and Songun policies, E5.

The enactment of numerous sanctions have been imposed upon North Korea due to its adherence to Juche and Songun and policies, which not only further encourages the promulgation of illicit acts, but does so with the detriment of its general population who endure terrible human rights violations. As North Korea denies itself the means to legitimately foster fair business trade in lieu for nuclear arms development, it is actively breaking international trade sanctions
and arm treaties, as demonstrated in E9 and E13 [E9: Treaty & Sanction Violation; E13: Supernotes seized from DPRK diplomats]. Furthermore, North Korea’s persistent manipulation and reactivation of the Yongbyon facility, E6, to further its nuclear fissile capacity is a direct violation of multiple accords. This brazen disregard to imposed sanctions and severing of non-proliferation treaties perpetuates North Korea’s portrayal as a country that cannot be trusted, thus further requiring a need to seek alternative modes of economic influx. The evidence-hypotheses analysis demonstrates that the generation of supernotes cannot solely support the monetary demands of North Korea, but rather acts as a facilitator acting as a cog in the illicit money making machine to advocate its ‘military first’ policy is ultimately partly responsible for the financing of its nuclear arms programs.

Although highly unlikely, in the event that North Korea is not producing supernotes and that its nuclear program is receiving no benefit of such illicit activity it is always advised that a contingency be addressed to acknowledge how lynchpin indicators can create for this type of scenario. In order for North Korea’s nuclear program to be independent from the influences of supernotes would necessitate that North Korea abstain from engaging in evidence indicators of high relevance, specifically halting its reliance on state sponsored illicit acts to procure funds to stimulate its GDP. In simpler terms, no supernotes means no nuclear program. However, for North Korea to support a nuclear program without the benefit of supernotes it would have to sacrifice more than just the counterfeit money. Additional sacrifices that may have to be surrendered are factors that inhibit international commerce. To absolve the nation of its deep trade deficits would demand that the forfeiting of its illicit money generating activities so as to better garner the international trust of global business. Furthermore, the ideological premise of self-containment must also be sacrificed as well as its defiance to maintain trade sanctions and
energy treaties, but for all this to occur would insinuate a regime change as too many factors must be adulterated to make way for the slight possibility of advocating a possibility of envisioning H1 to come to fruition.

It is much more likely, according to weighted inconsistency scores, that supernotes are directly responsible for the financing North Korea’s nuclear program than having no responsibility at all. The possibility that North Korea’s nuclear program is directly financed by supernotes, H2, would demand reciprocal stipulations of evidence indicators when compared to H1. Instead of attempting to garner the trust of the international community with appeasement so as to create a characteristic of nuclear responsibility, H2 would contrast by intensifying its production of supernotes and simultaneously incurring greater relations with rogue nations with heightened trade of military arms and technical fissile expertise, thus further violating internationally imposed sanctions and treaties, and in doing so would also make North Korea even more far-removed and isolated from the international community.
CHAPTER 6: CONCLUSION

North Korea is a growing nuclear threat that is compromising international diplomacy and security. This self-imposed isolated nation has a tenuous relationship with the international community where its continuous saber-rattling is keeping the world walking on diplomatic egg shells. Its mission to expedite the development of a nuclear arms program has yielded exhaustive measures to inhibit the further advancement of North Korean nuclear weaponry, primarily through the application of sanctions. However, the implementation of greater economic restrictions has urged North Korea to venture into clandestine ventures to finance its frail economy. North Korea is engaging in illicit acts, including producing supernotes, to acquire greater monetary funds to support its Songun policy. The evidence-hypotheses analysis has demonstrated that high-quality counterfeit US supernotes could be a powerful catalyst in fulfilling DPRK’s nuclear objectives.

It can be remarked from the second ACH analysis that the evidence provided on the topic of North Korea’s fabrication of supernotes demonstrates that supernotes could act as a catalyst aiding in further growth of illicit state managed crime, as well as nuclear arms development. Evaluation on the manufacturing of supernotes has revealed that as greater volumes of supernotes are manufactured the occurrence of illicit activities also increase, further compromising international safety. Unfortunately, halting North Korea’s manufacturing of supernotes would only retard but not cease DPRK’s atomic mission, as the ACH evaluation has demonstrated that counterfeit US money is only partly responsible for the financing of its nuclear program.

The existing body of academic literature on North Korea and its production and
proliferation of US counterfeit currency is not well-developed. Intelligence in regards to this matter is not plentiful and is largely subjective. Although the occurrence of information about North Korea and its nuclear threat is plentiful, what is not found are objective analyses that detail the reasoning for DPRK’s past, present, and future behaviors. The employment of ACH to study the North Korea’s nuclear threat-supernote relationship provided a simple model to think about a complex problem. This application of well-reasoned, analytical judgments systematically evaluated evidence to reject hypotheses that contains too much inconsistent data. Perhaps the absence of such substantial studies that can objectively confirm or deny the validity of the supernote-nuclear link is due to importance of this matter, the judgment to whether or not such a supernote-nuke link exists and that the DPRK nuclear threat is so important, that analysts cannot afford to be wrong. The risk that an assessment error could yield in a false hypothesis where a regional dilemma could be more intensely studied instead of the possibility of an impending international nuclear crisis. With so many unknown factors about DPRK it is especially challenging to rationally and systematically develop an objective forecast as to what North Korea will do next.

The choice to use ACH in exposing a supernote-nuke link proved to be crucial, not only as the presence of quantitative systematic models used to study this matter is seldom found, but also stimulated and guided in greater inquiry generation, to methodically evaluate evidence and hypotheses. Amalgamating structural analysis with intuition facilitated in the inquiry process, but did not force open a closed mind. Although ACH identified and questioned assumptions that were responsible for evidence gathering and hypotheses generation, failure in considering hypothetical alternatives with accompanying evidence was due mostly in part not because of the insufficiency of available data, but rather the lack of creative thought to identify unforeseen
outcomes, as demonstrated by the methods prescribed by Jones, Paul, and Elder. The intuitive process for this research was aimed primarily for evidence collection, where critical data was collected should it have an impact on the judgments about the hypotheses, recall ‘problem restatement’ and ‘checklist for reasoning’. This portion of the ACH process is the least scientific, that is, until the evidence is weighed when analyzing hypotheses. However, without initially entering the appropriate data the result will be skewed or completely false.

For example, the milestone provided in Matrix 1 revealed that without lynchpins E1-E3 [DPRK has supernote printing press, paper, and ink]. North Korea would not be able capable of producing supernotes. In the event that DPRK does not have such counterfeiting capacities then it should not have the hardware and material; this encourages the analyst to use creative and intuitive means to seek evidence that may justify such a belief, however, if no such evidence is found then the substantiation of the most valid hypothesis choice is suspect. The balance between structured analysis and creative judgment with intuition creates a systematic approach that must be exercised with caution as the results yielded, despite efforts to minimize cognitive biases, are dependent on the data entered. The payoff from ACH comes from its analytical process, not from the precise probability calculations for each hypothesis. Ultimately, the final judgment as to which hypotheses are least valid, thus leaving one best choice hypothesis, is made by the analyst and not by the matrix. Therefore, the use of ACH as a tool to explain past, present, or future events or to justify alternative courses of action is not absolute.

Other considerations to be deliberated, involving ACH’s creative and intuitive grey-area, include lynchpin evidence from Matrix 2, namely E8, E10, and E12 [E8: State Sponsored Illicit Acts; E10: Business Allies with Rogue Nations; E12: DPRK Actively Printing Supernotes]. It is with the assessment of the analyst that the weight of this evidence, when studied as a group and
individually, yields in the same conclusion that DPRK manufactured supernotes are partly responsible for the development of North Korea’s nuclear program. To further explain, if North Korea is not actively manufacturing supernotes, past production of counterfeits may have influenced in its business relations with rouge nations and its continued management of state sponsored crime. Should one, or all, of these three lynchpins prove to be true, then the possibility of a supernote-nuke link would be more likely than not. Although this decision was greatly based on empirical evidence founded on the credibility and relevance of each evidence artifact, it was an initial intuitive inspiration that founded these factors. Without applied intuition to consider evidence, the decision to refute more inconsistent hypotheses would have been compromised; the intuitive process has generated a large discrepancy in the grade of supernote-nuke responsibility, therefore strengthening the inconsistency score of the H1, supernotes are not financing North Korea’s nuclear program.

In regards to North Korean manufactured supernotes and its relationship with the creation and evolution of a new nuclear power, three considerations have been made. The first consideration that could affect the judgment outcomes is acknowledging the series of recent events in the past quarter-century. These dates are responsible for altering the supernote-nuke link assumption. It can be assumed that the number of offensives by North Korea involving military confrontations, diplomatic violations, or arms testing and trading is increasing with an increased frequency for saber-rattling and diplomatic agitation. Historical indicators of offensive nuclear strikes are limited, using North Korea’s past to dictate its future would prove to be unreliable. Other nations or non-state actors with nuclear arms capabilities have not yet made history in delivering an international nuclear catastrophe, therefore, there is no prescribed method or existing model confront North Korea’s emerging nuclear power. North Korea’s
supernotes are hastening its nuclear development, however, the weakness in this process is in identifying if DPRK’s nuclear intentions are indeed hostile. According to its history North Korea may have an increased number of offensive incidences, however, it is to be questioned that the production of supernotes is relevant in this increase or vice versa.

The second consideration further addresses the effectiveness of imposing sanctions upon North Korea. Evidence item E9 of Matrix 2 identifies high credibility and high relevance that increased sanctions imposed upon North Korea is encouraging the production of supernotes, therefore accelerating the development of North Korea’s nuclear program. Since the start of the Korean War in 1950 the United States has limited contact with North Korea and has continuous implemented sanctions to restrict trade. Decades of embargoes and international sequestration has yielded the argument that further prohibitions will prove to be ineffective.

For more than 60 years Washington has tirelessly advocated that placing sanctions upon North Korea will provide enough incentive to encourage the regime to modify its behavior for a foreign policy that is more becoming of an international audience. The gravity of this consideration is substantial, as history has demonstrated chronic sanctioning has not yielded any benefit in regards to the diplomatic strengthening of DPRK with the international community, but rather the opposite. It was during the Clinton administration that relationships between North Korea and with the US were more favorable than any other time in DPRK’s history. It is during this time period that Clinton agreed to the first major easing of economic sanctions against North Korea since 1953. Furthermore, US Secretary of State Madeleine Albright, who was the highest ranking US official to ever visit North Korea, facilitated in garnering greater inter-peninsula relations between both Koreas. ACH prompted this political consideration, which pleads that the DPRK supernote-nuke link could be mediated by negating the implementation of
sanctions. However, it could also be contemplated that North Korea took advantage of this relatively more submissive position to sow seeds for future international discontent, acquiring the required material to later manufacture supernotes to aid in nuclear armament.

At the same time, it could also be argued that as a nuclear disaster has not yet happened, therefore, the sanctions imposed upon North Korea are effective in its ability to retard the development of a North Korean nuclear threat and prevent a nuclear strike. Diminished commerce with the international business community has reduced North Korea’s exposure to factors that would have otherwise made for a stronger North Korean nuclear threat. By exercising sanctions against North Korea the argument that supernotes are responsible for the armament of a nuclear DPRK continues to be debated.

The third consideration continues upon DPRK’s financial crisis by branching into its foreign energy and agricultural dependency from other nations. Similar to the previous consideration, the implementation of sanctions and its responsibility in the development in a supernote-DPRK nuke link, this consideration will discuss a WWII comparison between the US and Japan. The Japanese occupation of northern French Indochina yielded in an American embargo in 1940 prohibiting the exchange of metal and oil.\textsuperscript{214} Later, in 1941, the freezing of Japanese national assets placed further strain on the Japan economy.\textsuperscript{215} The result was an immobile nation that was unable to survive unless deceitful measures were implemented.

Similar to WWII era Japan, current North Korea is a nation with comparable predicaments: an energy crisis, as a country that does not have sufficient petroleum reserves; and

\textsuperscript{215} Ibid.
an agricultural crisis, as a country without sufficient mechanical farming power. Both nations have experienced similar crises and have made the decision that for the sake of national preservation the employment of a strong offensive strategy is better than a defensive modification to placate the international community. For Japan the choice to maintain national survival was to declare war on the US by bombing Pearl Harbor. The past decision made by Japan can be compared with modern North Korea’s decision to aggressively confront the US, as well as the international community, and the policies that are continuing imposing new sanctions. North Korea’s development of a nuclear weapons capacity, like Japan’s bombing of Pearl Harbor, is an attempt to exist and maintain its national authority. For more than 60 years the greater part of the international community has been weaning North Korea from trade. The years after the end of the Soviet Era further economically isolated North Korea with greater financial challenges. Supernotes can be identified as a catalyst by acting as a life-support system preventing North Korea from a more rapid death by trade attrition.

The final consideration identifies the presence of the CIA’s possible manipulation of supernotes so as to create the premise that North Korea is creating supernotes. The speculation of the CIA using DPRK manufactured supernotes as a patsy to fund black operations is not impossible and the probabilities of such an event should not be discounted. Evidence concerning this topic is rare, speculative, and originates from only a small handful of sources, namely Bender, Elich, and Hall from the literature review section. This is a matter of high relevance, but is not found to be frequently discussed as the credibility from the sources are moderate at best and cannot assure analytical confidence. CIA denial and deception is the best fit for a wild card when comparing the previous considerations that were raised after using ACH. ACH is very limited in negotiating a possible CIA link to supernotes, as information to better explain this
possibility is just not available from highly credible sources. The possibilities of a CIA cover-up is possible, just not probable.

ACH is a structured analytical device that when combined with synthetic psychological function, creative thought with intuition, makes for a rational and systematic designed tool. The benefits of ACH have made for an auditable paper-trail to empirically support the sequence of rules and data implementation showing that North Korea is most likely manufacturing supernotes to aid the in its nuclear armament. However, the process to create an ACH has proved to be time consuming. Furthermore, ACH is an effective tool for rejecting hypotheses when compared with inconsistent factors; the evidence itself could not be explained with ACH, but weighed.

To improve upon the research performed and better assess the link of North Korean supernotes and a nuclear armed DPRK several factors were addressed. The first is that ACH demanded an overabundance of discrete judgments that did not easily fit a particular evidential weight. For example, to consider whether the CIA is directly, partly, or not responsible for supernotes funding North Korea’s nuclear program could fit into every category. In such a situation the analyst would have to seek additional evidence that is more specifically aligned with the demands of the hypotheses.

When giving extra attention onto potential lynchpin evidence, other important evidence factors were overlooked. Evidence items indicating that multiple factors were responsible for the occurrence of an event may not be given enough consideration. For example, it can be noted that when analyzing Matrix 2 E8, DPRK is sponsoring illicit activities, this piece of evidence is a multi- premise argument that closely identifies with several other evidence items and could be further broken down into other evidence items. Doing so, however, would demand that the analyst exercises more judgment in deciding whether or not the newly found piece of evidence to
be worthy of comparative evidence-hypothesis weighing, which again echoes the problem addressed previously, cognitive bias. The rigid adherence for discrete judgments in ACH resulted in a detached analysis, where the standard ACH framework failed to acknowledge the multi-layer or subordinate structure of evidence.

ACH can study and explain past, present, and future events, but the evidence used in the process is static, like a photograph in time. Previously, the introduction of new evidence to matrices could be cumbersome and confusing, as the analyst would have to construct another matrix. Presently, however, ACH computer software updates new information and weighs for inconsistencies to reject hypotheses. ACH programs, such as PARC, is less demanding on time and energy; what used to require long lengths of time are abbreviated with a click of a computer mouse. The choice to apply ACH in identifying a link between DPRK manufactured supernotes and North Korea’s nuclear arms program was suitable because it aids in minimizing cognitive biases when generating hypotheses and gathering evidence. However, ACH is an analytical tool and the end conclusion is determined by the analyst and not solely by the matrix.
APPENDIX - A: Key Assumption Check – ACH 1

Key Assumption:

E9: DPRK does not have printing talent

Assessment:

The probability that North Korea does not have the skilled work force required to operate and manage a currency production facility is likely, as the required investment in developing a skilled-worked is expensive and time consuming. However, history has proved that North Korea has an older generation of currency printers that is similar, if not identical, to those of the US Treasury. Although these older presses are probably retired from service, the operators and managers that serviced them could still cultivate new printing talent.

POSSIBLE

E11: DPRK needs cash to purchase military arms/technology from rogue nations

It can be determined from the sources found in the literature review that rogue nations seek North Korea for military hardware more so than North Korea seeking arms from rogue nations. North Korean manufactured military arms sell for $100’s millions annually, leaving the reported amount North Korea spends on procuring nuclear technology to advance its nuclear mission. Also consider that North Korea may not necessarily be using cash, but rather barter. Economic sanctions makes dealing with cash more difficult.

LIKELY, but a transaction using supernotes in exchange for military material has not yet been reported.

E12: Maintain and Support Juche and Songun policies demands supernote

The policy of military-first and national self-preservation are virtues that are paramount within North Korean ideology. National ideological maintenance costs money, so as to
maintain and improve upon social programs and DPRK development. It must be understood that the North Korean army, compared to the rest of the world, is proportionally very large and has the largest special-forces branch in the world. The Kim desire to maintain its army is very costly, however, a reputation for corruption and greed sullies Juche and Songun ideologies.~POSSIBLE

E15: Diminished Chongryon Financial Support

Financial support from Chongryon has been shrinking less and less through the years, mostly due to its shrinking population of ethnic North Korean that never returned after the Korean War, or even earlier, since the Japanese occupation during WWII. The revenue generated by this group is not substantial enough to significantly alter the course of North Korea’s nuclear mission.~NOT LIKELY

E16: Droughts, Floods, and Famine

Supernotes are not being used to deal with droughts, floods, and famine, but it is more likely that supernotes are collected by corrupt elite before reaching the needy. ~NOT LIKELY

E17: China is manipulating DPRK to produce supernotes.

China is a close trade partner with North Korea and is implementing economic pressure upon North Korea to produce supernotes. But this is very unlikely, what is to stop China from manufacturing supernotes? Furthermore, this claim is unsupported. ~NOT LIKELY
APPENDIX - B: Is DPRK Printing Supernotes? – ACH Matrix 1

Table A.1: Is DPRK Printing Supernotes? – ACH Matrix 1.1

| E1    | China is manipulating DPRK to produce supernotes | Assumption | LOW   | LOW   | I   | C   | C   |
| E16   | Droughts, Floods, and Famine                    | Assumption | LOW   | MEDIUM | N   | C   | NA  |
| E15   | Diminished Chongryon Financial Support           | Assumption | LOW   | LOW   | I   | C   | NA  |
| E14   | Loss of Russia Financial Support                 | Fact      | HIGH  | MEDIUM | I   | C   | NA  |
| E13   | Placate Elite Class                              | Logical Deduction | MEDIUM | MEDIUM | I   | C   | NA  |
| E12   | Maintain and Support Juche and Sungun policies   | Assumption | MEDIUM | MEDIUM | I   | C   | N   |
| E11   | DPRK needs cash to purchase military arms/technology from rogue nations | Assumption | LOW   | MEDIUM | I   | C   | CC  |
| E10   | Diplomacy failure and Sanctions                  | Logical Deduction | MEDIUM | MEDIUM | I   | C   | CC  |
| E9    | DPRK does not have printing talent               | Assumption | MEDIUM | MEDIUM | C   | I   | I   |
| E8    | ROK denial of DPRK made supernotes               | Logical Deduction | MEDIUM | MEDIUM | C   | I   | I   |

Legend:

CC = very consistent; C = consistent; N = neutral; NA = not applicable; I = inconsistent; II = very inconsistent.
Table A.2: Is DPRK Printing Supernotes? – ACH Matrix 1.2

<table>
<thead>
<tr>
<th>Evidence</th>
<th>Type</th>
<th>Credibility</th>
<th>Relevance</th>
<th>H: 1</th>
<th>H: 2</th>
<th>H: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>E11 DPRK needs cash to purchase military arms/technology from rogue nations</td>
<td>Assumption</td>
<td>LOW</td>
<td>MEDIUM</td>
<td>II</td>
<td>C</td>
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<tr>
<td>E10 Diplomacy failure and Sanctions</td>
<td>Logical Deduction</td>
<td>MEDIUM</td>
<td>MEDIUM</td>
<td>I</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>E9 DPRK does not have printing talent</td>
<td>Assumption</td>
<td>MEDIUM</td>
<td>MEDIUM</td>
<td>C</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>E8 ROK denial of DPRK made supernotes</td>
<td>Logical Deduction</td>
<td>MEDIUM</td>
<td>MEDIUM</td>
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<td>I</td>
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<tr>
<td>E7 Supernotes are catalyst for illicit activities</td>
<td>Logical Deduction</td>
<td>HIGH</td>
<td>HIGH</td>
<td>I</td>
<td>C</td>
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<tr>
<td>E6 DPRK cash only economy</td>
<td>Fact</td>
<td>HIGH</td>
<td>MEDIUM</td>
<td>I</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>E5 DPRK Delegates Transferring Supernotes Abroad</td>
<td>Fact</td>
<td>HIGH</td>
<td>MEDIUM</td>
<td>I</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>E4 DPRK cannot afford Supernote print hardware</td>
<td>Logical Deduction</td>
<td>HIGH</td>
<td>MEDIUM</td>
<td>C</td>
<td>I</td>
<td>N</td>
</tr>
<tr>
<td>E3 DPRK has Supernote Ink</td>
<td>Fact</td>
<td>HIGH</td>
<td>HIGH</td>
<td>I</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>E2 DPRK has Supernote Paper</td>
<td>Fact</td>
<td>HIGH</td>
<td>HIGH</td>
<td>I</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>E1 DPRK has Supernote Press</td>
<td>Fact</td>
<td>HIGH</td>
<td>HIGH</td>
<td>I</td>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>

Weighted Inconsistency Score: -23.656, -4.828, -10.0

Legend:
CC = very consistent; C = consistent; N = neutral; NA = not applicable; I = inconsistent; II = very inconsistent.
Figure A.1: Inconsistencies- Is DPRK Printing Supernotes?
APPENDIX - D: Is DPRK Printing Supernotes? – Evidence List 1

Evidence for Matrix 1 Matrix

Evidence 17
Name: China is manipulating DPRK to produce supernotes
Type: Assumption
Credibility: LOW
Relevance: LOW
Notes:
As this is an unsupported assumption without any sources cited in this study. The possibility of China working in cooperation with DPRK to produce supernotes is a possibility is UNLIKELY, as this subject is absent of any mention from the research performed.

Evidence 16
Name: Droughts, Floods, and Famine
Type: Assumption
Credibility: LOW
Relevance: MEDIUM
Notes:
Rose, North Korea’s Dollar Store, p. 5.

Evidence 15
Name: Diminished Chongryon Financial Support
Type: Assumption
Credibility: LOW
Relevance: LOW
Notes:

Evidence 14
Name: Loss of Russia Financial Support
Type: Fact
Credibility: HIGH
Relevance: MEDIUM
Notes:

Evidence 13
Name: Placate Elite Class
Type: Logical Deduction
Credibility: MEDIUM
Relevance: MEDIUM
Notes:

Evidence 12
Name: Maintain and Support Juche and Songun policies
Type: Assumption
Credibility: MEDIUM
Relevance: MEDIUM
Notes:

Evidence 11
Name: DPRK needs cash to purchase military arms/technology from rogue nations
Type: Assumption
Credibility: LOW
Relevance: MEDIUM
Notes:
Korea Criminals - Pyongyang’s Persistent Illegal Activities (Jane’s Intelligence Review, 16 September 2010 ), p. 1-2, 5. --- David Albright, Peddling Peril (Free
Evidence 10
Name: Diplomacy failure and Sanctions
Type: Logical Deduction
Credibility: MEDIUM
Relevance: MEDIUM
Notes:

Evidence 9
Name: DFRK does not have printing talent
Type: Assumption
Credibility: MEDIUM
Relevance: MEDIUM
Notes:
Elich, North Korea and the Supernote Enigma, p. 10. --- Hall, US Counterfeiting Charges Against N. Korea, p. 3.

Evidence 8
Name: ROK denial of DPRK made supernotes
Type: Logical Deduction
Credibility: MEDIUM
Relevance: MEDIUM
Notes:
Royce, Gangster Nation, p. 8.
Evidence 7
Name: Supernotes are catalyst for illicit activities
Type: Logical Deduction
Credibility: HIGH
Relevance: HIGH
Notes:
David Albright, Peddling Peril (Free Press, New York, 2010), p. 4. --- Korea Criminals - Pyongyang’s Persistent Illegal Activities (Jane’s Intelligence Review, 16 September 2010), p. 4.

Evidence 6
Name: DPRK cash only economy
Type: Fact
Credibility: HIGH
Relevance: MEDIUM
Notes:

Evidence 5
Name: DPRK Delegates Transferring Supernotes Abroad
Type: Fact
Credibility: HIGH
Relevance: MEDIUM
Notes:
Evidence 4
Name: DPRK cannot afford Supernote print hardware
Type: Logical Deduction
Credibility: HIGH
Relevance: MEDIUM
Notes:
Elich, North Korea and the Supernote Enigma, p. 10. --- Bender, Supernoates., p. 4.

Evidence 3
Name: DPRK has Supernote Ink
Type: Fact
Credibility: HIGH
Relevance: HIGH
Notes:

Evidence 2
Name: DPRK has Supernote Paper
Type: Fact
Credibility: HIGH
Relevance: HIGH
Notes:

Evidence 1
Name: DPRK has Supernote Press
Type: Fact
Credibility: HIGH
Relevance: HIGH
Notes:
APPENDIX - E: Key Assumption Check – ACH 2

Key Assumption:

E4: Less Chongryon Aid

Assessment:

Financial support from Chongryon has been shrinking less and less through the years, mostly due to its shrinking population of ethnic North Korean that never returned after the Korean War, or even earlier, since the Japanese occupation during WWII. The revenue generated by this group is not substantial enough to significantly alter the course of North Korea’s nuclear mission. However, when considering the bellicose history between Korea and Japan supernotes combined with its relationship with nuclear arms makes North Korea project an image of greater power. Furthermore, North Korea loves sabre-rattling.—LIKELY

E5: Songun and Juche Policies always demands more funding

Supernotes alone is not enough to fulfill a North Korean atomic vision that embraces its Songun and Juche ideologies, as corrupt, greedy fingers snag much funding. However, when introducing the element nuclear power, it proves to be a game changer.—PROBABLE

E11: Hurt US Currency Confidence: Reg. & Int'l

Although the prevalence of supernotes compared to the gross amount of US dollars in international circulation is minuscule, the continued presence of supernotes will affect regions that are dependent on the US dollar. Furthermore, the cyclical nature in the management of North Korea’s illicit activities means that more illicit activities will yield in more illicit activities and probably faster nuclear armament. —PROBABLE
E12: DPRK Actively Printing Supernotes

Although there is no proof the North Korea is currently printing supernotes, it is highly relevant and LIKELY so long as North Korea continues to introduce new nuclear developments and tests.

E14: ROK Supernote Denial

LIKELY- In any case where South Korean officials downplay the occurrence of supernotes, it can be assumed that South Korea is attempting to engage in diplomacy…with this perspective it may be better to manage the situation than solve the problem.

E16: Basketball diplomacy

UNLIKELY- the implementation of basketball yields no correspondence to supernotes and it’s financing of North Korea’s nuclear program. In the slight chance that supernotes could be used in coordination with this evidence would probably be used to pay the basketball players, such as Dennis Rodman…unsupported assumption.

E17: Increasing size of upper/middle class

UNLIKELY. Not enough supernotes are produced to provide for an economic trickle-down effect, however, the top elite class is growing larger, but will not take precedence over North Korea’s atomic ambition.

E18: Execution of Jang Song Thaek

The execution of Uncle Jang Song Thaek was based on treason and corruption. If Kim Jung Un's uncle was indeed found to be engaged in participating in illicit activities, his execution would act as a flashlight focusing attention on DPRK illegal activities. Furthermore, a public display of authoritarian justice is implying that the Kim regime
does not tolerate insurrection nor the propogation of illegal funds acquisition. Kim Jung Un's power-play could be used to better seat himself as the unchallenged leader, not prevent corruption. Un’s execution of his Uncle is UNLIKELY to have any relation to a supernote-nuclear link. No supporting information acknowledges that the execution Thaek has any relationship to the supernote-nuclear arms program link.

E20: Hollywood

Theatrical films are excellent at portraying North Korea as the international villain. However, Hollywood has no connection with supernotes or North Korea’s nuclear program other than a sinister portrayal. A Hollywood-supernote link is UNLIKELY.
**APPENDIX - F: Supernotes Financing DPRK’s Nuclear Program -**

**ACH Matrix 2**

Table A.3: Supernotes Financing DPRK’s Nuclear Program – ACH Matrix 2.1

<table>
<thead>
<tr>
<th>Enter Evidence</th>
<th>Type</th>
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<th>Relevance</th>
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<th>H: 2</th>
<th>H: 3</th>
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<tbody>
<tr>
<td>E20 Hollywood</td>
<td>Assumption</td>
<td>LOW</td>
<td>LOW</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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<td>E19 Introduction of a new bill design</td>
<td>Logical Deduction</td>
<td>HIGH</td>
<td>LOW</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>E18 Execution of Jang Song Thaek</td>
<td>Assumption</td>
<td>HIGH</td>
<td>LOW</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>E17 Increasing size of upper/middle class</td>
<td>Assumption</td>
<td>MEDIUMLOW</td>
<td></td>
<td>I</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>E16 Basketball Diplomacy</td>
<td>Assumption</td>
<td>LOW</td>
<td>LOW</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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<tr>
<td>E15 Timeline - increased DPRK offenses</td>
<td>Fact</td>
<td>HIGH</td>
<td>MEDIUM</td>
<td>N</td>
<td>N</td>
<td>N</td>
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<tr>
<td>E14 ROK Supernote Denial</td>
<td>Assumption</td>
<td>MEDIUMLOW</td>
<td></td>
<td>C</td>
<td>C</td>
<td>II</td>
</tr>
<tr>
<td>E13 Supernotes seized from DPRK diplomats</td>
<td>Fact</td>
<td>HIGH</td>
<td>MEDIUM</td>
<td>I</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>E12 DPRK Actively Printing Supernotes</td>
<td>Assumption</td>
<td>LOW</td>
<td>HIGH</td>
<td>II</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>E11 Hurt US Currency Confidence: Reg. &amp; Intl</td>
<td>Assumption</td>
<td>MEDIUMLOW</td>
<td></td>
<td>N</td>
<td>C</td>
<td>C</td>
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</tbody>
</table>

**Legend:**

CC = very consistent; C = consistent; N = neutral; NA = not applicable; I = inconsistent; II = very inconsistent.
<table>
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<tr>
<th>Evidence</th>
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<td>E10</td>
<td>Business Allies with Rogue Nations</td>
<td>Logical Deduction</td>
<td>HIGH</td>
<td>MEDIUM</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>E9</td>
<td>Treaty &amp; Sanction Violation</td>
<td>Fact</td>
<td>HIGH</td>
<td>HIGH</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>E8</td>
<td>State Sponsored Illicit Acts</td>
<td>Logical Deduction</td>
<td>HIGH</td>
<td>HIGH</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>E7</td>
<td>Cash Driven Economy</td>
<td>Logical Deduction</td>
<td>MEDIUM</td>
<td>MEDIUM</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>E6</td>
<td>Construction of Yongbyon</td>
<td>Logical Deduction</td>
<td>HIGH</td>
<td>HIGH</td>
<td>C</td>
<td>I</td>
</tr>
<tr>
<td>E5</td>
<td>Songun and Juche Policies</td>
<td>Assumption</td>
<td>MEDIUM</td>
<td>MEDIUM</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>E4</td>
<td>Less Chongryon Aid</td>
<td>Assumption</td>
<td>MEDIUM</td>
<td>LOW</td>
<td>N</td>
<td>C</td>
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<tr>
<td>E3</td>
<td>Loss of Soviet Aid</td>
<td>Fact</td>
<td>HIGH</td>
<td>MEDIUM</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>E2</td>
<td>DPRK Agriculture Crisis</td>
<td>Logical Deduction</td>
<td>HIGH</td>
<td>MEDIUM</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>E1</td>
<td>DPRK Trade Deficit</td>
<td>Fact</td>
<td>HIGH</td>
<td>MEDIUM</td>
<td>C</td>
<td>C</td>
</tr>
</tbody>
</table>

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Part 2/2
APPENDIX - G: ACH Inconsistency Score vs Hypothesis, Matrix 2

Figure A.2: Inconsistencies- Supernotes Financing DPRK’s Nuclear Arms Program
APPENDIX - H: Supernotes Financing DPRK’s Nuclear Program - Evidence

List 2

Evidence for Main Matrix

Evidence 20
Name: Hollywood
Type: Assumption
Credibility: LOW
Relevance: LOW
Notes: Growing number of North Korean related films are being produced in recent years. Although such films may depict aggressive and hostile behavior, no mention of supernotes have been portrayed in films. Furthermore, although Kim Jong II was an avid film enthusiast, Hollywood did not officially motivate DPRK to produce supernotes.

Evidence 19
Name: Introduction of a new bill design
Type: Logical Deduction
Credibility: HIGH
Relevance: LOW
Notes: As the US Treasury has updated the designs of new bills DPRK has been following suit with well -crafted supernotes. DPRK is continually updating its designs with the US as they have similar, if not identical, machinery to print the bills. In the event that DPRK cannot match the new design older series of bills can be printed. The average circulation life of a $100 bill is 8 years or more, therefore DPRK has this allotted amount of time to update its presses. Should not update not be performed DPRK can still resume printing of older series supernotes, although it may raise greater suspicion with continual generation of older series prints. --- Royce, Gangster Nation, p. 16. --- Dick K. Nanto, North Korean Counterfeiting of US Currency. (Congressional Research Service, 2009). p. 1.

Evidence 18
Name: Execution of Jang Song Thaek
Type: Assumption
Credibility: HIGH
Relevance: LOW
Notes:
The execution of Uncle Jang Song Thaek was based on treason and corruption. If Kim Jong Un's uncle was indeed found to be engaged in participating in illicit activities, his execution would act as a flashpoint focusing attention on DPRK illegal activities. Furthermore, a public display of authoritarian justice is implying that the Kim regime does not tolerate insurrection nor the propagation of illegal funds acquisition. Kim Jong Un's power-play could be used to better seat himself as the unchallenged leader, not prevent corruption. Un's execution of his Uncle is UNLIKELY to have any relation to a supernote-nuclear link.

Evidence 17
Name: Increasing size of upper/middle class
Type: Assumption
Credibility: MEDIUM
Relevance: LOW
Notes:
Kim Jong Un is dispersing more funds to the growing upper-social strata. This could be interpreted as an indicator that supernotes are funding the development of this class, but does not explain the relationship between nukes and supernotes. This idea violates the Songun policy, debunking supernote-nuke ties.

Evidence 16
Name: Basketball Diplomacy
Type: Assumption
Credibility: LOW
Relevance: LOW
Notes:
Dennis Rodman as political envoy to sniff out illicit activity...not likely

Evidence 15
Name: Timeline- increased DPRK offenses
Type: Fact
Credibility: HIGH
Relevance: MEDIUM
Notes:
DPRK timeline reveals an increased incidence of military and nuclear testing offenses. DPRK sinking of the Cheonan and artillery strikes are not conducive to counterfeit money production

Evidence 14
Name: ROK Supernote Denial
Type: Assumption
Credibility: MEDIUM
Relevance: LOW
Notes:
Fractured relationship yielded failed negotiations between the Koreas and 6-party talks. North Korea’s frozen assets due to the Macau Banco Delta, recent human right violations, and continued nuclear development at Yongbyon. The ROK denial of supernotes is to prevent conflict and encourage union. By denying the occurrence of supernotes could ROK be attempting to manage the problem, its faulty relationship with DPRK rather than trying to solve the problem. Although the credibility of this evidence is high, the account is personal in nature and focuses attention on individual emotional reactions, which can be unreliable, especially in regards to sensitive international politics and relations.

Evidence 13
Name: Supernotes seized from DPRK diplomats
Type: Fact
Credibility: HIGH
Relevance: MEDIUM
Notes:
Evidence 12
Name: DPRK Actively Printing Supernotes
Type: Assumption
Credibility: LOW
Relevance: HIGH
Notes:
Additional evidence includes: Green Pine, Operation Smoking Dragon,

Evidence 11
Name: Hurst US Currency Confidence: Reg. & Int'l
Type: Assumption
Credibility: MEDIUM
Relevance: LOW
Notes:
Economic disruption is not DPRK’s the primary objective. It is poor and desperate country in financial straits and just needs the money. --- Edward R. Royce, Gangster Regime: How North Korea Counterfeits United States Currency (House Foreign Affairs Committee, 12 March 2007), p. 5.

Evidence 10
Name: Business Allies with Rogue Nations
Type: Logical Deduction
Credibility: HIGH
Relevance: MEDIUM
Notes:
Continued relations with dangerous, hostile, and/or rogue nations will perpetuate DPRK illicit activities operations and the production of supernotes. Syria, Iran, sectarian in UAE and Yemen. ----- Albright, Peddling Power, p. 3. --- Stephan Haggard and Marcus Noland, Sanctioning North Korea: The Political Economy of Denuclearization and Proliferation (Asian Survey, 2010), p. 553.

Evidence 9
Name: Treaty & Sanction Violation
Type: Fact  
Credibility: HIGH  
Relevance: HIGH  
Notes:  
Although DPRK is has been and is currently under the pressure of strict trade sanctions DPRK continues to resume nuclear technology and hardware advancement. Furthermore, additional evidence of just violations include the presence of sanctioned luxury goods found throughout, especially in Pyoungyang. Primary illicit trade partners include China and Singapore. Western goods including Coca Cola, Hershey Kisses, Doritos, etc. --- An Overview of Sanctions With Respect to North Korea (Office of Foreign Assets Control, US Department of the Treasury, May 6, 2011) http://www.treasury.gov/resource-center/ sanctions/Programs/Documents/nkorea.pdf (accessed 10 December 2013). --- Kelsey Davenport, UN Security Council Resolutions on North Korea (Arms Control Association, March 2013) http://www.armscontrol.org/factsheets/UN-Security-Council-Resolutions-on-North-Korea (accessed 10 November 2013). --- Jasper Becker, Rogue Regime: Kim Jong Il and the Looming Threat of North Korea (Oxford University Press. New York, 2005), p. 188.

Evidence 8  
Name: State Sponsored Illicit Acts  
Type: Logical Deduction  
Credibility: HIGH  
Relevance: HIGH  
Notes:  

Evidence 7  
Name: Cash Driven Economy  
Type: Logical Deduction  
Credibility: MEDIUM  
Relevance: MEDIUM  
Notes:  
As the credit rating for DPRK is below the floor this country has great difficulty in procuring international investors. The supernote-ruke relevance is medium as the availability of US dollars is illegal in DPRK and is controlled by a minute and corrupt few. Supernotes are going into nuclear development, but it is more likely that

Evidence 6
Name: Construction of Yongbyon
Type: Logical Deduction
Credibility: HIGH
Relevance: HIGH
Notes:
Donald Kirk, Nuclear North Korea: 6 Ways It Differs From Iran (Christian Science Monitor, 5 December 2013), p. 2.

Evidence 5
Name: Songun and Juche Policies
Type: Assumption
Credibility: MEDIUM
Relevance: MEDIUM
Notes:

Evidence 4
Name: Less Chongyang Aid
Type: Assumption
Credibility: MEDIUM
Relevance: LOW
Notes:
Low relevance as the amount of money sent from Chongyang is currently very small, even though past amount may have been considerable. Chongyang will no longer be a powerful contributor to DPRK but will aid as a catalyst with some capital stimulation. --- David E. Kaplan and Mark Madden, The Wise Guy Regime (US News and World Report, February 15, 1999), p. 2. --- Max Fisher, North Korea is losing a crucial source of income: Koreans in Japan (Washington Post, 25 October 2013), p. 1.
Evidence 3  
**Name:** Loss of Soviet Aid  
**Type:** Fact  
**Credibility:** HIGH  
**Relevance:** MEDIUM  
**Notes:**  
---

Evidence 2  
**Name:** DPRK Agriculture Crisis  
**Type:** Logical Deduction  
**Credibility:** HIGH  
**Relevance:** MEDIUM  
**Notes:**  

Evidence 1  
**Name:** DPRK Trade Deficit  
**Type:** Fact  
**Credibility:** HIGH  
**Relevance:** MEDIUM  
**Notes:**  
--- Klaus W Bender, Supernotes: Das Geheimnis der gefälschten Dollar noten (Frankfurter Allgemeine Zeitung, 2007), p.3.


Bender, Klaus W. “Supernotes: Das Geheimnis der gefaelschten Dollarnoten.” *Frankfurter Allegemeine*. 1 August 2007.


CURRICULUM VITA

Michael Yatskievych was born in Bad Kreuznach, Germany. The son of Ukrainian and Korean immigrants, George Yatskievych and Kuna Na, Michael graduated from Maxine L. Sylva High School for Health Professions, El Paso, Texas, in the spring of 1999 and entered The University of Texas at Austin in the fall. While concurrently pursuing bachelor’s degrees in advertising and history, Michael worked as a healthcare professional, where he inadvertently became more exposed to intelligence analysis by providing rehabilitative services to several members of the intelligence community. After completing his undergraduate studies he earned his teaching certificate. While teaching math and science Michael found his professional calling that would best fit his varied academic and ethnic background. To better hone his potential craft, he concentrated his energies in not only becoming more diplomatically aware of intelligence in the global arena, but also, how strategic and tactical methods of national security objectives are implemented with the encouragement of his paternal legacy in intelligence. In the spring of 2010, he entered the Graduate School at The University of Texas at El Paso and enrolled in the Intelligence and National Security Studies program.

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This thesis was typed by Michael Yatskievych