Kingfisher SYSTEMS, INC.

WHITE PAPER

Kingfisher Computational Analysis

North Korea

Using statistical analysis to produce the missing story

Prepared By:

Kingfisher Systems, Inc.

3110 Fairview Park Drive, Suite 1250

Falls Church, VA 22042

Phone: (703) 635-2951

Fax: (703) 820-7976

Email: varyss@kingfishersys.com

North Korea has been a unique challenge for the United States since the fall of the Soviet Union. For more than two decades, none of the countries that have helped shape North Korea has found enough leverage, either on its own or as part of a coalition, to push North Korea to denuclearize, to join the international community, or to liberalize its economy. The conflicting expectations among the many parties involved are sustained by internal politics, making it difficult to develop a broadly acceptable policy. The solution, we believe, can be found using quantitative models derived from massive datasets; i.e., computational analysis of "big data."

Quantitative models identify new leverage points; they help deal with the complexities of North Korea-related diplomacy; and they help model the consequences of possible strategies. The original sources of the quantitative data are newspaper stories, from which information is inferred using machine learning tools. Every day, just under 1,000 distinct articles are published on North Korea by a few hundred unique sources. Each story contributes tidbits towards a result. The composition is made possible using models based on elite dynamics, which comb through the dataset to create statistical products that encode the knowledge from thousands of observations.
The simplest use of a statistical product is the missing story—one that should have been in the news, but is not. An example is the purge of Jang Songthaek, for many years a powerful figure in North Korea who suddenly disappeared from the news. Eventually, his fall from grace became public, but his disappearance was evident in the news months before. Jang's absence is a fact only in relation to trends culled from the aggregate of many news stories, and not explicitly apparent in any article.

Statistical products at more complex level can be used to study bilateral interactions in the region which includes North Korea. Bilateral measures can be obtained for elite interaction between two countries where there is an expectation for that interaction. By comparing the bilateral measures for several countries, it is then possible to observe how those countries allocate their resources. Some higher-level observations derived from statistical models for the region include:

- North Korea and China became estranged after the demise of Jang Song-thaek.
- China showed an interest in curtailing North Korea. Early in Kim Jong-un's tenure, China took advantage of North Korea's interest in economic reform and stronger trade relations to press Pyongyang to curb its ballistic missile program and return to six-party talks concerning its nuclear weapons program.
- Russia cancelled 90% of North Korean debt and opened discussions about the development of joint energy and infrastructure projects, but the rapprochement with Russia was transitory.
- North Korea and both South Korea and Japan have settled into a pattern where a relatively constant set of unresolved issues repeatedly come to fore, sustaining a relatively stable level of discord.
- Japan's recent role in North Korea's foreign relations is small, as is that of Iran and Syria.
- Data and statistical models generated from a regional study of bilateral interactions can be (and were) used for a more detailed game theoretical look at North Korea. The resulting view offers a perspective of North Korea as an oligarchy controlling a weak party that governs through a primitive patron-client system. Our observation and study of similar oligarchies and patron-client systems elsewhere — combined with the statistical and

computational results underpinning our graphs and analysis — suggest new and/or alternative operational strategies for the U.S. Government to engage North Korea.

In this perspective, North Korea differs from the common characterization of opinion pieces. Internally, the Worker's Party of Korea governs through a patron-client system of local and intermediate elites. Patron-client systems are primitive authority structures that seek loyalty by balancing distribution of meager resources with the use of political violence and intimidation. Oligarchies and patron-client systems have been observed in many other groups and nations, which helps inform suggestions for operational strategies to engage North Korea.

Since the rule of law is weak, there is a persistent tolerance for black-market and other criminal activities, which supplement small amounts of industrial output and imported goods. Over 85% of North Korea's declared foreign trade is with China, which supplies over 1,700 essential categories of goods necessary to the functioning of industry and agricultural production. Within these pedestrian transactions also flow drugs, arms, and other sanctioned articles. With a dominant trade partner in China, it benefits North Korea to seek leverage against China's monopoly, which it does by engaging in a risk auction.

The risk of war was the main strategic tool of the Cold War. As Mutually Assured Destruction (MAD) was a possible end state for conflict between the United States and the Soviet Union, any increased probability of war carried dire consequences. Even without the use of nuclear weapons, war could end tragically for North Korea and severely disrupt the economies of China and South Korea. While not a MAD scenario, the risk of war appears to be sufficient for North Korea to gain the needed leverage. Its nuclear weapons, leadership style, and inexperienced military only boost the risk. While North Korean brinkmanship serves purposes beyond a risk auction, this interpretation matches its stated objectives and suggests that altering its foreign trade market may diminish the risk of war.

Non-declared foreign trade is a source of power, likely fragmented, with different commodities controlled by distinct elites. In a patron-client system, these goods are needed resources for power and governance. Trade is likely maintained and guarded by personal relationships, which makes it difficult to transfer the power of resource control through changing authorities. In North Korea, we observed frequent purges where people are ostracized, relocated, or executed—the most notable purge being that of Jang Song-thaek. A key interlocutor with China, relations between Pyongyang and Beijing cooled after Jang's demise; a fruitless attempt by Russia did not fill the void left by China. Only recently does China seem to be returning to its previous level of importance to North Korea. The changing dynamics of China's relations with North Korea are reflected in data that show a destabilizing effect on North Korea's internal structure.

For U.S. Government (USG) decision makers, these computational analyses can provide additional options. To avoid a catastrophic war, or the repeated threats of one, this framework suggests the availability of alternate moves that could transform North Korea. The data also suggest that China looms large in Pyongyang's bilateral relationships. The logic of the analyses further suggests that, by expanding the countries involved with North Korea, other elites in North Korea will be empowered, alternative agendas will arise and be tried, and the poorly controlled grip China has on the country loosened. We argue that this process can be managed because of North Korea's

total reliance on external rents; by shifting the importance of its most salient relationship (China), the USG can influence North Korea's trajectory. This somewhat differing view of North Korea may help further an understanding of North Korea technological advances, such as the development of technology necessary to deliver nuclear weapons using ballistic missiles.