



**FEATURE ARTICLE:
TOEING THE NUCLEAR LINE**



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Both have lived a life of privilege and luxury. Both got head starts on their professional lives thanks to wealthy and powerful fathers. Both have very limited political careers, but have found themselves at the helms of their respective countries. Both have control of powerful nuclear weapons, and neither are afraid to talk about it. Combined, they have served a total of seven years in public office. One is Donald Trump, a 71-year-old real estate mogul, turned President of the United States. The other is Kim Jong-un, the 33-year-old Supreme Leader of the Democratic People's Republic of Korea (North Korea).

Tension between the United States and North Korea has waxed and waned over the past several decades, but the fiery rhetoric that has been exchanged between their two leaders recently seems to have ratcheted up the tension to all-time highs. The improvement in North Korea's technical capability in developing both intercontinental ballistic missiles (ICBMs) and miniaturised nuclear weapons that have the potential to reach the American mainland has put the US and its new leadership on edge. Historically, US presidents have been able to manage these issues diplomatically, but Trump has chosen to fight fire with fire, with comments such as *'North Korea best not make any more threats to the United States. They will be met with fire and fury, like the world has never seen.'*

In this month's feature article, we discuss the escalating tensions between North Korea and the United States. First, we delve into why the recently escalating tensions feel different to past periods of tension between North Korea and the United States. We discuss what we consider to be the likely scenarios when it comes to how the world will try to ensure that North Korea does not go on the attack with its nuclear weapons, and discuss the economic and financial market implications of the different potential outcomes. The role that North Korea's allies will play is coming under increasing scrutiny, with calls from the United Nations (UN) for China and Russia to part ways with their ally for the good of themselves and the world. Ultimately, this is an issue that has the potential to have serious implications for Australia, both because of the proximity of the country to the Korean peninsula, but also because of its alliance with the United States. The risks of this situation escalating into anything more than a war of words would be severe, not just for financial markets, but for human life.

1.1 North Korea's Toeing of the Nuclear Line is Nothing New

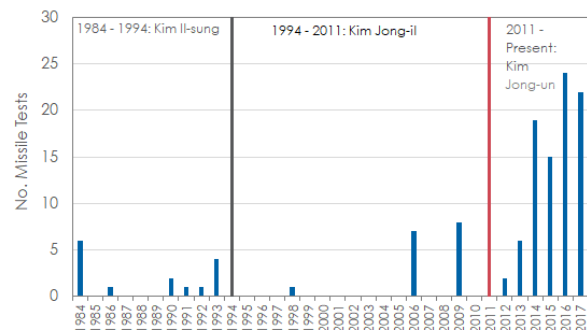
The knowledge that North Korea has nuclear weapons at its fingertips is not new information. It has been developing its nuclear weapons program for a long time, much to the chagrin of the nation's allies and enemies.

The Korean War started in 1950 when North Korea invaded the south and would have likely conquered it had the US not intervened. The US-led coalition almost took the entirety of North Korea but was stopped by a Chinese counter-intervention. The war ended in an armistice in 1953, and the US promised to support South Korea against any future attack, backing up this promise by leaving thousands of American troops deployed in South Korea. The ongoing US military presence is a constant reminder for North Korea that the US, the world's strongest military power and of its primary enemies, is next door.

As a result, North Korea's entire foreign policy is centred around the threat of war with America. It has developed its military and its nuclear capabilities based solely on deterring the United States from invading, reminiscent of the struggle between the United States and the former Soviet Union. It considers that nuclear weapons are likely the ultimate deterrent against any future international efforts to cause a regime change in North Korea.

But why does this time around feel different? Why do the escalating tensions of 2017 feel different to past periods of rising tension and defiance? First, Kim Jong-un has already launched more missiles in 2017 than his father, Kim Jong-il, did in his entire lifetime.

Chart 1: Number of Missiles Launched Under Different Leaders, 1984 - 2017



Source: BBC, Whitehelm Advisers

The change in leadership in the United States is also making this time around feel quite different. During Donald Trump's campaign leading up to the presidential election, he painted the picture that he would set out to be one of the more moderate

presidents in recent history when it comes to his willingness for open dialogue with Kim Jong-un, even referring to him as a *'smart cookie'*. However, since his inauguration, Trump has taken a much more hard-lined stance on North Korea. Much like past American presidents, Trump wants to put a stop to North Korea's missile program. Past presidents have taken a more diplomatic approach however, rather than taking to social media to denounce the regime and allude to its total destruction.

The psyche of North Korea in general, the penchant its current leader has for testing nuclear missiles, and the brazen attitude of Trump has made for the perfect melting pot for escalating tension and rising political risks.

1.2 Can a Diplomatic Solution to Nuclear Disarmament be Reached?

It appears that both North Korea and the US have a fear of seeming weak or inferior and as a result are trying to intimidate each other with military bluster. Neither necessarily want war, and would prefer a peaceful solution, but with each additional missile test and each brazen tweet, the two leaders back further away from the possibility of reaching a diplomatic solution and closer to the cliff's edge.

The Precedent Set by Previous Presidents

The Trump administration is certainly not the first to try to negotiate a diplomatic solution with North Korea, and the Clinton, George W. Bush and Obama administrations also pushed to achieve the same result.

In 1994, President Clinton landed a deal with Kim Jong-il in which the latter agreed to stop producing the raw material for nuclear bombs. In exchange, the United States would provide a significant amount of much needed aid following the severe flooding and famine that struck North Korea in the mid-1990s. Soon after Bush's inauguration in 2001, intelligence agencies determined that North Korea was not keeping up its end of the bargain, and was producing nuclear material via a different method. The American government quickly stopped providing the required fuel and North Korea restarted its nuclear plant.

After Kim Jong-il's first missile test in 2006, Bush tried desperately to negotiate a new deal with North Korea, but the negotiations did not materialise into an agreement. Arguably, the Obama administration was the one that sat on its hands the most. It took on a stance of *'strategic patience'*, which is a vague term to describe waiting for North Korea to denuclearise before the US would return to the negotiating table.

Trump Versus His Administration

Trump has been openly critical of Obama's strategic patience method, however Trump has yet to put forward a coherent plan as to how he plans to deal with the situation diplomatically.

Trump's administration, particularly Secretary of State, Rex Tillerson, has been adamant that a diplomatic solution can be reached, having alluded to open communication channels between North Korea and the US when he spoke on a recent visit to Beijing. Defence Secretary James Mattis said *'we're never out of diplomatic solutions.'* On the other side of the coin, Trump has continued to question how successful diplomacy will be in slowing North Korea's nuclear programme, including with this series of tweets on 7 October 2017:

'Presidents and their administrations have been talking to North Korea for 25 years, agreements made and massive amounts of money paid...hasn't worked, agreements violated before the ink was dry, making fools of U.S. negotiators. Sorry, but only one thing will work!'

North Korea is Unlikely to Compromise

It is widely believed that the reason that North Korea has never backed away from its nuclear program, despite the admonishment from the international community, is because North Korea's long-term goal is to reunify the two Koreas. Kim Jong-un's grandfather tried and failed to do this during the Korean War and the two countries have been in an armistice ever since. To unify the two Koreas, North Korea needs the United States to stop protecting South Korea. Developing and displaying its nuclear program is one way to try to scare the US out of the region.

Kim Jong-un also believes that nuclear weapons are critical to the survival of his own regime and his survival as Supreme Leader. He has witnessed Muammar Gaddafi of Libya give up his nuclear programme to try to improve Libya's relationship with the Western world and to have long-standing economic sanctions on the country lifted, only to end up killed by a NATO-led military intervention that supported rebels in overthrowing Gaddafi's regime.

Can Diplomacy Lead to a Nuclear Disarmament?

For diplomacy to work, it will likely require the United States to, at least partially, accept a nuclear North Korea. Finding some middle ground with the enemy is more likely than getting the enemy to throw his hands up in the air and back down completely. Containing the problem, or allowing North Korea to keep its nuclear weapons but to not develop any more, in exchange for sanction relief may be a more constructive, and potentially realistic, first step.

Arguably, the United States can do a lot to strengthen the likelihood of a diplomatic solution before even engaging with North Korea. It can improve its relationships with its allies in the region, particularly South Korea. Trump has not yet officially appointed a US Ambassador to South Korea, and has only recently indicated that the likely appointment will be Victor Cha, a former White House official during Bush's tenure. Assistant Secretaries of State and Defence also need to be appointed, which would go a long way to improve communication between the US and South Korea.

The more likely outcome will be that the importance of finding a diplomatic solution that aims to de-arm North Korea will continue to fall on deaf ears. Neither side is willing to meet at the bargaining table, so the world is stuck in a state of status quo of two thin-skinned world leaders hurling insults back and forth, both with their country's nuclear codes in their back pockets.

However, this may be the equilibrium that the world could find itself in. The concept of mutually assured destruction (MAD) was what kept the United States and the Soviet Union from unleashing their nuclear weapons on each other. The idea is that both sides could fight in a war with their arsenal of nuclear weapons, but both sides would be annihilated and there would be no winners. The military theory behind MAD is one of deterrence in that an opponent can be deterred from using its nuclear weapons because it knows it would be destroyed in a quick retaliation. Russia and the United States clearly do not see eye to eye on many things, but MAD has kept both countries at bay for the past several decades. This 'uneasy peace' could be the optimal diplomatic outcome in the current situation of North Korea versus the world.

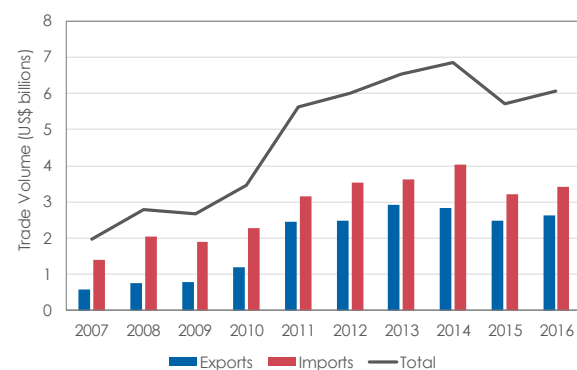
1.3 Economic Sanctions

North Korea has had sanctions imposed against it since 2006 and the sanctions have grown increasingly onerous over the past decade as the US and the EU have continued to impose unilateral measures. Yet, the country's nuclear program has continued to flourish. How likely is it that a new round of economic sanctions will be any more successful?

To estimate the likely impact of economic sanctions going forward, it is important to understand why past economic sanctions have not been as successful as hoped. One theory is that some countries, particularly Russia and China, have dragged their feet in the full implementation of the economic sanctions.

Despite the sanctions that the United Nations have imposed over the past decade, North Korea's trade with China has continued to increase. China has also opened a container shipping route, a high-speed rail line and created a trade zone at the border in 2015, boosting bilateral trade. Chart 2 shows the volume of trade between North Korea and China, with 'Exports' denoting exports from North Korea to China and 'Imports' denoting imports from China into North Korea. Trade has fallen off slightly over the past two years, but according to the Korea Trade-Investment Promotion Agency (KOTRA) that records this data, it is largely because of the drop of key trade items, such as coal, as well as the economic slowdown in China.

Chart 2: North Korea's Trade with China, 2007 - 2016



Source: KOTRA, Whitehelm Advisers

The economic sanctions have also not worked because North Korea has become adept at working around them. It is believed that the country has a very extensive framework of channels and methods to rely on as increasingly tougher economic sanctions have been enforced. It has been reported by defectors that North Korea often uses its contacts in Russia and China to open bank accounts to access international markets, or to buy goods and funnel them into the country.

Can Economic Sanctions Work?

North Korea considers having a nuclear arsenal the difference between life and death and so historically, the country has not let economic sanctions interrupt its nuclear arms plans. Kim Jong-un has already showed a high degree of indifference to the suffering of his people, and economic sanctions will typically hurt the people of the country more than the Supreme Leader himself. Additionally, China and Russia will likely always be the countries that try to water down any sanctions that the UN tries to implement, which quickly erodes their intended impact. Economic sanctions that go as far as to cause widespread famine, for example, could cause North Koreans to try to flee the country in droves, and

China and Russia, as North Korea's closest allies and neighbours, would likely have to be the countries to receive them.

Additionally, extreme economic sanctions could backfire for the countries that are trying to implement them. On 4 September, Trump tweeted: *'The United States is considering in addition to other options, stopping all trade with any country doing business with North Korea.'* China is both North Korea's and the US' largest trading partner – the US imported more than US\$460 billion worth of goods and services in 2016 alone. The US stopping all trade with China alone could be the trigger for a widespread trade war, with wide-reaching and deleterious consequences for the US.

1.4 Conflict on the Korean Peninsula

The possibilities discussed so far outline the path of least destruction, however we have argued that they are unlikely to disarm the north anytime soon. We consider that the status quo of a sophisticated nuclear weapons program in the face of human suffering, and or an escalation of tensions leading to a series of miscalculations, and in turn military conflict on the Korean peninsula, more likely.

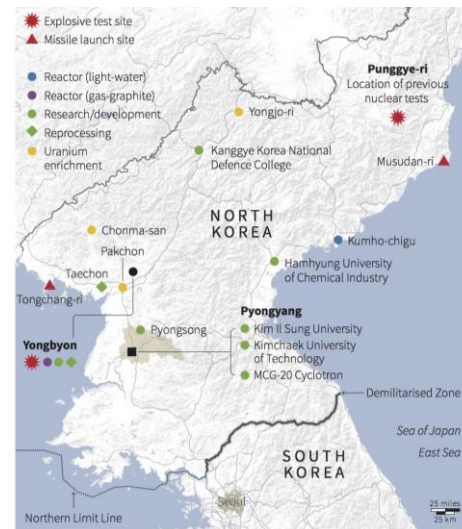
What are the chances that the escalating tensions on the Korean peninsula could lead to a brief and contained military conflict, but without a full ground war or regime change? We consider it to be incredibly unlikely. Trump has claimed that there are military solutions for the issue, however members of his administration and high-ranking US military officials seem less certain.

US Secretary of Defence James Mattis said: *'There are no good, easy, risk-free options here. This is extraordinarily difficult, extraordinarily dangerous. No one should underestimate it.'*

A possibility that has been discussed is for the US to attack North Korea by way of obliteration of its nuclear and missile facilities. This is made difficult by North Korea's strategic distribution of its nuclear facilities all over the country, as shown in Figure 1 below.

The isolation of North Korea also makes this incredibly difficult given that there could be many more nuclear test sites that are not known about. The country's mountainous terrain and its extensive tunnels mean that nuclear weapons could remain intact following a first strike by the United States.

Figure 1: North Korea's Nuclear Facilities



Source: Nuclear Threat Initiative, Federation of American Scientists; US-Korea Institute, John Hopkins University

The risks of miscalculation and escalation in this scenario are so great that it is hard to imagine how the US would be able to bring an end to North Korea's nuclear program without bringing the entire Korean peninsula into a long, drawn-out and disastrous conflict.

One way this situation could rapidly get out of hand is by North Korea misinterpreting Trump's rhetoric as a sign that the US is about to attack, or by a North Korean missile test inadvertently striking an asset of the US or an ally. We have already seen examples of verbal misunderstandings, as North Korea's foreign minister Ri Yong Ho said that the country could now target US bombers and military jets, even outside of its airspace after Trump claimed on Twitter that the North Korean leadership would not be around much longer.

The risk of misinterpretation, which would lead to a series of miscalculations and an ugly spiral of escalation would lead to a catastrophe that neither side necessarily set out to achieve.

The American and South Korean militaries far outmatch the North Korean military, so the North Korean government would be best placed to avoid a long and protracted conflict. Instead, it could perceive it to be in its interests to deliver an early blow, which would mean the possibility of an attack on one of the American bases in East Asia, or in the South Pacific, or possibly an American city. The US' military assets are currently scattered all over the world, which could make its reaction time slower. North Korea is best placed to act quickly and impulsively to strike first if it perceives any sign of threat from the US.

If the United States were to retaliate or be the first to attack North Korea, such as by an airstrike to obliterate one or more of its nuclear facilities, it appears likely that North Korea could retaliate, causing a significant loss of life. North Korea has an estimated 1,000 conventional artillery pieces pointed at Seoul, a city of 10 million people.

If the situation resulted in full-blown military conflict, we would expect that many US allies would be involved as well.

For North Korea, full-blown conflict could lead to the destruction of the regime and the deaths of many North Korean people. The humanitarian crisis that this has the potential to bring about is almost unfathomable. To understand which countries will be most impacted, consider North Korea's borders. Should war erupt in North Korea, thousands, if not millions of North Koreans would attempt to flee the country. The border that the country shares with South Korea, the DMZ, is arguably the most fortified border on the planet, is guarded by both the South Korean and North Korean militaries, and is dotted with landmines. Fleeing North Korea via the DMZ comes with massive risk.

Instead, North Koreans could move north and attempt to cross the border into China or Russia. Rivers define the border between North Korea and China, but many people have managed to cross them safely in the past. Currently, China considers defectors from North Korea economic migrants, and therefore offers them no protection under the UN's 1951 Refugee Convention, and instead typically returns them to North Korea, despite knowing that the defectors will likely face harsh treatment.

In the case of war however, China would have to find a way to shoulder the burden of a massive refugee crisis. Turkey is handling a similar problem currently with Syrian refugees which has come at great cost, both financially and politically.

The likely implications of a humanitarian crisis for China highlight the reasons why it has been toeing a very difficult line. On the one hand, it does not want to implement economic sanctions that will cause such pain and suffering to North Koreans that they try to flee to China. On the other, it wants to avoid a military conflict, because that would likely result in many more refugees flowing into the country, with South Korea and its American ally on its doorstep.

1.5 A Revival of the Nuclear Arms Race

North Korea's pursuit of a strong nuclear program for the purposes of self-defence and regime preservation has made negotiating with North Korea

incredibly difficult. The most likely solution to this mess will be the United States accepting the fact that North Korea is deterrable and so if the US plays its cards right, can coexist with a nuclear-armed North Korea. It has been able to do just that with Russia and China. Both countries have nuclear arms, both have had allegations of human rights abuses, but both have an understanding with the US regarding their nuclear programs.

Throwing in the proverbial towel in terms of a denuclearisation of the Korean peninsula could result in a call for other parts of Northeast Asia to nuclearize. There have already been calls from South Korean officials and politicians that it might now be the time to reintroduce American tactical nuclear weapons into South Korea, which had been previously withdrawn in 1991 by George H.W. Bush. Additionally, there have been calls for South Korea to consider building its own nuclear capacity rather than living in the shadow of the weapons that its northern neighbour has pointed at it.

It is unlikely that it would just be South Korea that develops a nuclear program, Japan would likely participate because it would not want to be the only non-nuclear country in the region. China would be best-placed to improve its nuclear arsenal given that it is currently relatively modest compared to those of North Korea and the United States.

This scenario could be the one that avoids conflict in the short to medium term, but could have long-term destabilising implications if the entirety of East Asia has extensive nuclear arsenals.

1.6 Broader Implications

Diplomatic Disarmament

In the case of a diplomatic disarmament, we expect it would likely be a long journey to get to a solution, if at all. If the journey to a diplomatic solution is not smooth and straightforward, we could expect an increase in volatility in share markets, with the potential for a market correction of between 5-10% based on past crises. However, once a solution is reached, we would expect share markets to bounce back.

A suitable precedent for the present situation is the lead-up to and the resolution of the Cuban Missile Crisis, which had the world seemingly on the brink of nuclear war in October 1962. From 16 to 28 October 1962, the United States and the Soviet Union were engaged in a period of confrontation and tense negotiations concerning ballistic missile deployment in Italy and Turkey, and Soviet ballistic missile deployment in Cuba. This period is considered the closest the Cold War came to a full-blown nuclear conflict. In the two-week period of negotiations, the

S&P 500 was surprisingly resilient given the circumstances, losing 4.8%, before gaining 16% in the last two months of the year.

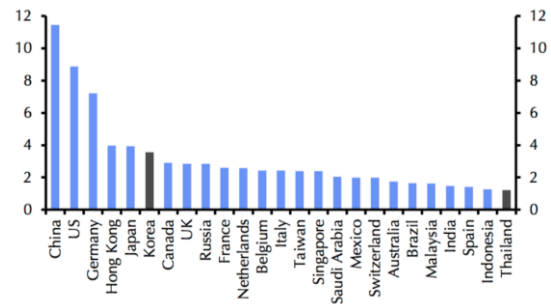
A more damaging outcome would be one in which, according to the United States, China does not appear to be holding up its end of the bargain in trying to get North Korea to the bargaining table. It is clear the United States firmly believes that China has the power to dictate the outcome of this situation because of North Korea's dependence on the country. Given Trump's tweet alluding to business restrictions for any countries conducting business with China, this could result in all-out trade wars between the world's two largest economies. Such a trade war would slow economic activity in the Asia Pacific region and would be highly damaging for Australia as well. We have discussed the risk of trade wars in previous feature articles – a reversal of globalisation has few winners.

Military Conflict

Obviously, the Korean peninsula would likely withstand the worst of any economic shock in this scenario, with the South Korean economy the worst hit. The South Korean economy accounts for almost 2.5% of global GDP, so an economic dislocation would have large spill-over effects globally.

South Korea is a major exporting nation, and so conflict on the Korean peninsula of any duration can be expected to have serious implications for supply chains around the world. In a research report released by Capital Economics, it compared the likely impact from conflict to the implications that the extensive flooding in Thailand in 2011 had. It considers this to be a relevant comparison because of the impact that the damage the flooding had on the country's manufacturing industry, which would also be expected in the case of conflict on the Korean peninsula as well. The impact of the flooding led to a 4% fall in annual Thai GDP growth in the fourth quarter of 2011, in large part because of a 16% fall in the country's manufacturing output. As the chart below highlights, South Korea exports three times as many intermediate products as Thailand, so a disruption to South Korea's manufacturing capabilities would have far more wide-reaching implications.

Chart 3: Export of Intermediate Goods, as a Percentage of Global Total, as of 2016



Source: Capital Economics

South Korea is the largest producer of liquid crystal displays (technology used in everything from computer monitors to smartphones to aircraft cockpit displays), producing 40% of the global output. The country is also the second largest producer of semiconductors, is a very important automobile manufacturer and is home to the three of the top four largest shipbuilders globally. If South Korean manufacturing was badly damaged by conflict, there would be shortages around the world, and the disruption would last for a long time.

It would not just be the South Korean economy affected by conflict in this scenario. If the conflict were to result in a lengthy ground war involving the United States, its government would end up spending vast amounts of money on the effort. During the Korean War, the US government spent equivalent to 4.2% of its annual GDP fighting the war. The Gulf War and its aftermath has been estimated to have cost US\$1 trillion (or 5% of one year's US GDP).

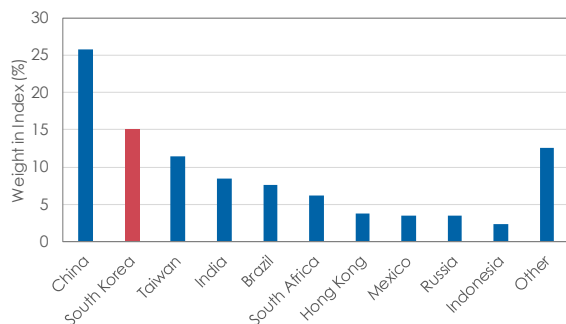
This would significantly push up US federal debt. At just above 100% already, a rise in federal debt in the United States would be worrying given Trump's other fiscal initiatives look set to push up the debt levels already. Trump's tax plan alone could add US\$10 trillion to the federal debt within 10 years, a 50% increase from the US\$20 trillion level where it currently sits.

Financial Market Implications

In the case of conflict on the Korean peninsula, Asian equities and Asian currencies would likely be the asset classes that investors flee first, moving capital towards the more traditional, and robust safe haven asset classes such as gold, the US dollar, US Treasuries and the Swiss franc. These are all stable and highly liquid asset classes and have proven to be strong performers during risk-off events in the past. Asian currencies and equities would be viewed as the most likely to be impacted if conflict were to lead to disruption in regional trade, manufacturing supply chains and investment flows.

The short-term pain would likely be much more severe and long-lasting for countries that are directly involved – South Korea, China, Japan and potentially the United States and its allies. This would have significant implications for the performance of emerging market equities given that Chinese shares (H-shares which trade on the Hong Kong Stock Exchange) and South Korean shares combined make up more than 40% of the MSCI emerging markets index, per Chart 4 below.

Chart 4: Breakdown of MSCI Emerging Markets Index, as of 30 September 2017



Source: MSCI, Whitehelm Advisers

Note: 'Other' denotes the 16 countries that are included in the MSCI Emerging Markets Index, which, combined, only account for 12.6% of the index.

The current Shiller ratio for the US equity market suggests that stocks are currently very expensive. The only time since its inception that the Shiller ratio has been higher is the lead-up to the tech bubble in 2000 and prior to the Great Depression in the 1930s, as the chart below highlights. The intensifying risks related to North Korea come at a time when North American share markets are highly priced and at risk of correction.

Chart 5: Shiller P/E for US Equity Market, 1900 - 2017



Source: Robert Shiller, Whitehelm Advisers

In the short term, a risk-off phase in markets would likely see investors choosing safety over uncertainty, leading to an increased demand for government

bonds, and particularly US Treasuries. This would cause yields to fall (and prices to rise).

But over the long term, particularly if military conflict is long and protracted, bonds have historically lost their lustre. Inflation has often also been higher during wartimes, and fixed interest returns have historically been negatively correlated to inflation.

1.7 Conclusion

The Korean War of the 1950s was undoubtedly the biggest force to have shaped the current state of the Korean peninsula. It instilled a belief in North Korea, both its people and its leadership, that the United States could invade North Korea at any time. It is this belief that has motivated North Korea to develop its nuclear arsenal – based on its assumption that only nuclear weapons can deter the US from invading.

The Trump administration (and much of the international community) would like to see the denuclearisation of North Korea through a strong diplomatic effort, including with economic sanctions fully implemented by the entire world. Understanding North Korea's history and the mindset of its leadership makes this incredibly unlikely.

We consider that the melting pot of North Korea's suddenly robust nuclear program, the totalitarian leadership of Kim Jong-un and the unpredictability and the brazenness of Donald Trump have amplified the risks of miscalculation, by either side. The implications of a misunderstanding are severe – with the possibility of a military conflict not out of the question.

While geopolitical risk is a factor for financial markets, price volatility remains remarkably low, notwithstanding the few small tremors this year following periods of escalating tension between North Korea and the United States. If this uncertain situation were to result in conflict, we would expect something similar to previous responses – a sharp risk-off phase followed by a rebound well before the conflict ends.

What is certain is that the ongoing conflict between North Korea and the United States, as well as much of the developed world, is of extreme concern for the global economy, financial markets and for human life.

This feature article is a condensed version of a more in-depth article. If you are interested in accessing the longer-form version, contact Nicole McMillan at Nicole.McMillan@WhitehelmCapital.com