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Chip Diplomacy: Chip War Taiwan, People's Republic China and United States and its Implications for Indonesia

Mohammad Nurdin Al Latief[1*], Jonni Mahroza[2], Priyanto[3], Pujo Widodo[4], Rudy Sutanto[5], Sri Patmi[6], Lukman Yudho Prakoso[7]
Universitas Pertahanan Republik Indonesia
Corresponding Author: Mohammad Nurdin Al Latief nurdin.allatief@gmail.com

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A B S T R A C T

The main goal of this research is to analyze the implications of chip war between PRC, US and Taiwan and its implications to Indonesia. This research uses a qualitative descriptive approach to gain an in-depth understanding and description of the phenomenon or issues related chip war between PRC, US and Taiwan and its implication to Indonesia. Result and findings is During the 1970s, the Taiwanese government established the Industrial Technology Research Institute, tasked with conducting research in the realm of silicon chips. The United States and China are competing to dominate the semiconductor industry. Taiwan has become the world's largest chip production center. The political situation between the United States, Taiwan, and China is heating up. Taiwan holds a key position in global semiconductor production.

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INTRODUCTION

The Asia Pacific region is the most strategic and dynamic region in terms of economy, politics, and military. International security is generally determined by how security dynamics and interactions in this region unfold. Its strategic position results in a constellation of conflicts and cooperation involving not only the countries in the region but also other countries. The region brings together major world powers such as the United States, Japan, Russia, and even the new emerging superpower, People's Republic of China (PRC). Therefore, this article will discuss the PRC-Taiwan conflict where America involves itself as a manifestation of its global interests in the Asia Pacific region (Syahbuddin, 2019).

The dynamics of the relationship between PRC and Taiwan can be described as a pattern of 'subordination' and has been going on for a long time. One trigger is if Taiwan officially declares independence (Wong, 2022). This is because the conflict between the two has been ongoing since 1945. After changing the monarchy system to a republic, the Communist Party of PRC took over and declared the People's Republic of PRC on October 1, 1949. The Kuomintang Party led by Chiang Kai-shek, which is nationalist, formed its own country in an effort to break away from the country after its defeat in the civil war against the Communist Party led by Mao Zedong (Sujadmiko, 2010). This incident led the nationalist party to flee to Formosa Island, which later established the PRC. In this conflict, the United States has assisted Taiwan in dealing with various issues with PRC. The United States has supplied a large amount of military equipment to Taiwan to anticipate threats from PRC. The arms trade between the United States and Taiwan continues, until the issue of Taiwan's statehood status is questioned, as Taiwan does not receive international recognition as an independent and sovereign state. During reunification efforts, the United States shows its role as Taiwan's protector (Ramadhani, 2018).

The 50-year Japanese occupation (1895-1945) did indeed have a negative impact on Taiwan's relationship with PRC. Although they were united for four years (1945-1949), the Communist Revolution led to further disintegration. US intervention since 1950 has exacerbated this disintegration, according to Wang (2006) cited in Mubah (2014). With US assistance, the Nationalist government began building the economy and developing Taiwan's democratic system. While PRCexperienced slow economic growth and continued to maintain its communist system, Taiwan experienced rapid economic development and grew into a more democratic country. This is because Taiwan adopted a similar economic and political system to the US. Moreover, the US also provided a large amount of military power to Taiwan to anticipate threats from PRC. The arms trade between the United States and Taiwan continues, until the issue of Taiwan's statehood status is questioned, as Taiwan does not receive international recognition as an independent and sovereign state. During reunification efforts, the United States shows its role as Taiwan's protector (Putri, 2021).

From 1990 to 2008, corrosive political dynamics dominated the relationship between PRC and Taiwan. During this time, both countries were suspicious of each other and prepared various ways to pursue their interests (Bush, 2010). The roots of the conflict between PRC and Taiwan include; first, President Tsai's reluctance to accept the 1992 consensus. This consensus stated that there is only one PRC through the One PRCPolicy (Albert, 2016). Second, the ongoing civil war that has not ended officially. This is because the Chinese government does not recognize the government in Taiwan (The Economist, 2014). PRC regards Taiwan as a province that is part of its territory, therefore not meeting the requirements for state-to-state relations. Issues related to Taiwan became important for PRC when they became aware of the involvement of the United States. PRC hoped that the United States would adhere to the principles of the One PRC Policy, and that Taiwan would obey the policies set by the Chinese government (Bush, 2017).

The One PRC Policy received a negative reaction from Taiwan, as Taiwan did not want to reunite with PRC. Taiwan regarded itself as de facto sovereign and considered itself a separate country. Despite Taiwan's negative reaction, PRC continued to implement the One PRC Policy by imposing strict rules on countries that wished to establish diplomatic relations with PRC; these countries were not allowed to have relations with Taiwan. In other words, under the One PRC Policy, other countries had to respect and acknowledge this policy and choose to work with only one government if they wanted to continue cooperating with PRC (Nabhila, 2017). In 2016, Tsai Ing-wen was appointed as the first female president of Taiwan. During the election, PRC closely monitored the results, leading to their rejection of the election process. PRC continued to insist that Taiwan's affairs were internal matters for PRC. PRC reiterated the importance of respecting the 1992 consensus (Hidriyah, 2016). President Tsai Ing-wen continued to push for Taiwan's independence through various means. Therefore, Xi Jinping was determined to thwart Taiwan's efforts to achieve independence from PRC and asserted the importance of upholding the One PRC Policy. PRC remained steadfast in its claim over Taiwan, even though the country has had its own government for over 70 years. PRC insisted that both sides were under one flag, but President Tsai Ing-wen rejected this notion (Horton, 2018).

In response, Xi Jinping increased surveillance and pressure to restrict Tsai's governing abilities. The presence of the United States in support of Taiwan, along with Taiwan's various efforts, were seen as threats to PRC's national interests. In the effort to maintain Taiwan as part of PRC and to address potential threats, especially to PRC's security, various policies were then implemented. Given the multidimensional rise of PRC, security under Xi Jinping not only focused on the military but also on the economic and political aspects in addressing Taiwan (Dewi et al., 2019). Silitonga (2020) in “Geopolitics and International Contemporary Issues in Asia Pacific and Beyond”, mentions that the ideological differences between PRC and Taiwan have led to PRC not recognizing Taiwan's sovereignty. However, PRC still claims Taiwan as part of its territory. On the other hand, Taiwan has the United States as its supporter.

Silitonga (2020) stated that tensions between Taiwan and the United States have arisen due to interventions aimed at limiting PRC's influence (Azzara, 2022).

Evidence of the dynamics of the PRC-US relationship in the following years can be seen from the historical context. During the 1970s, under the administrations of Richard Nixon (1969-1974) and Jimmy Carter (1977-1981), the US began to disregard the Taiwan issue and decided to approach PRC in order to counter Soviet influence during the Cold War (Bush, 2003). Nixon even once stated, "good relationship with PRC were more important than good relationship with Soviet Union" (Mann, 1999, 17). As a result, after the Nationalist government's seat on the UN Security Council was taken over by the Communist government in 1971, the US transferred its recognition from Taipei to Beijing. Nixon showed support for PRC's sovereignty during his visit to Beijing in 1972. This historic visit resulted in the Shanghai Communique agreement, which included a clause stating "the United States acknowledges that all Chinese on either side of the Taiwan Strait maintain there is but one PRC and that Taiwan is a part of PRC" (Hu, 2000, 257).

The peak of the improvement in PRC-US relations occurred in 1979 when both countries agreed to normalize relations. Since then, the relationship between the two countries has continued to improve despite fundamental differences between them (Wang, 2006, 4). The Taiwan issue remains a sticking point in PRC-US relations. Moreover, when the US normalized relations with PRC in 1979, the US Congress balanced this by passing the Taiwan Relations Act (TRA) on April 10 of the same year. The act stated that "Washington would maintain the capacity of the United States to resist any resort to force or other forms of coercion that would jeopardize the security, or the social or economic system, of the people on Taiwan" (TRA, 1979).

This policy has made the Taiwan issue even more complex and challenging since, on one hand, the US recognizes the one-PRC policy as stated in the Shanghai Communique, but on the other hand, the US is obligated to protect Taiwan based on the TRA (Yang, 2004, 10). In response to the passage of the TRA, PRC expressed its objections and questioned the US commitment. Despite being angered, Beijing refrained from escalating the situation into an open conflict (Tucker, 2009). Therefore, post-normalization, PRC-US relations can be described as harmonious yet vulnerable to conflict due to differing views on the Taiwan issue.

The conflict between the People's Republic of China (PRC) and Taiwan has sparked concerns locally and globally, particularly due to Taiwan's crucial role as a leading supplier of semiconductors to the global electronics and automotive industries. The semiconductor sector has now become a highly sensitive geopolitical issue, with potential ramifications for international trade and relations between the US, PRC, and Taiwan. In September 2022, the US government imposed sanctions on PRC's largest chipmaker, Semiconductor Manufacturing International Corporation (SMIC), citing concerns about military applications in the PRC(Diwakar, 2021). This underscores the significant implications of the PRC-Taiwan conflict, particularly for countries like Indonesia

and the wider region with vested interests in the situation in Taiwan (Muhammad, 2022).

The urgency of this research lies in the increasing importance of semiconductor chips in modern technology, as they are essential components in a wide range of electronic devices. Taiwan's technological advantage in chip production has positioned the country as a key player in the global semiconductor industry. However, recent tensions and technological warfare between Taiwan and PRC have raised concerns about the potential impact of a chip war on countries like Indonesia. The main goal of this research is to analyze the implications of chip war between PRC, US and Taiwan and its implications to Indonesia. By understanding the dynamics of chip diplomacy and the risks associated with technological warfare, policymakers in Indonesia can better prepare for potential disruptions in the semiconductor supply chain and mitigate any negative impacts on the country's tech industry. Additionally, this research aims to shed light on the importance of strategic partnerships and collaborations in ensuring a stable and sustainable semiconductor supply chain for Indonesia and other countries in the region.

LITERATURE REVIEW

International Political Economic Theory

International Political Economic Theory is an approach in the study of international relations that considers the interaction between political and economic factors in the context of international trade, foreign investment, monetary policy, and so on. This theory discusses how a country's political decisions can affect economic decisions and vice versa (Krugman, 2014).

The Theory of Realism in International Relations

Realism in International Relations is one theory that states are major actors in global geopolitics and act on their own national interests. This theory emphasizes strength, security, and competition between states as major factors in international relations. One of the proponents of the theory of realism in international relations is Hans Morgenthau, a German political and international theorist. In his book "Politics Among Nations: The Struggle for Power and Peace", Morgenthau explains that states are rational and selfish, and become major actors in global politics (Morgenthau, 2006)

Interdependence Theory

Interdependence theory is a concept in international relations that suggests that countries are interdependent on each other in various aspects such as politics, economics, and security. This theory says that countries cannot stand alone without relations and cooperation with other countries. One theory that supports the concept of interdependence is "Complex Interdependence" proposed by Robert Keohane and Joseph Nye. They argue that in international relations, states are not only interdependent in political and military aspects, but also in economic, cultural, and environmental aspects (Keohane, 2001)

METHODOLOGY

This research uses a qualitative descriptive approach to gain an in-depth understanding and description of the phenomenon or issues related chip war between PRC, US and Taiwan and its implication to Indonesia. Data collection is obtained through literature review by collecting various articles, books, journals, or other sources related to the PRC vs Taiwan and chip war. The analysis technique used follows the theory of Milles, Huberman, and Saldana (2014), which includes data collection, data condensation, data display, and conclusion drawing and verification. The validity of the data used involves aspects such as Credibility (Internal Validity), Transferability (External Validity), Dependability (Reliability), and Confirmability (Objectivity) carried out at each stage as depicted in the research design below. The above steps are taken to ensure the accuracy of the research results and to ensure that the approach used by the researcher is consistent if used by other researchers in different topics (Gibbs, 2007 and Creswell, 2017).

RESEARCH RESULT AND DISCUSSION

History of PRC Conflict – Taiwan

War is defined as armed conflict between two or more governments or countries. War is an act of violence intended to compel our opponent to fulfill our desires (Clausewitz, 1873). War is also defined as a "legal condition that allows two or more groups to engage in armed conflict in a balanced manner" (Walzer, 2006). Broadly speaking, the methods and practices of war or warfare can be divided into various types, based on time period (prehistoric war, ancient war, modern war), based on arena (land war, sea war, air war), based on types of weapons used (submarine war, chemical war, nuclear war), based on parties involved (Roman war, Chinese war, Arab war), or based on tactics used (guerrilla war, siege war, asymmetric war).

Former Secretary of Defense under President Bill Clinton, William J. Perry, was the first to declare that breakthroughs in information technology would change the face of war in the future. In a famous quote, he stated that we live in an age driven by information. Breakthroughs in technology are reshaping the face of war and how we prepare for it. Perry recognized that many countries around the world, including the United States, move strategic resources such as electricity, money flow, air traffic, oil, gas, public services, and other strategic resources through complex information technology (Suprayitno, 2022). The conflict between the People's Republic of China (PRC) and Taiwan has persisted for decades, originating after the conclusion of the Chinese Civil War in 1949. Following the defeat of the Chinese Nationalist forces, led by the Kuomintang (KMT) under Chiang Kai-Shek, in a confrontation with the Chinese Communist forces led by Mao Zedong, Chiang Kai-Shek and his supporters retreated to the island of Taiwan where they established a provisional government.

Since then, relations between mainland PRC and Taiwan have been tense. PRC considers Taiwan as a part of its separate territory, while Taiwan maintains its claim to sovereignty as a sovereign state. Both parties have been involved in political, economic, and military disputes that continue to prolong their conflict. One peak of tension between PRC and Taiwan occurred in 1996, when Taiwan held a presidential election that was deemed provocative by PRC. In response, PRC launched a series of missile tests near Taiwan's waters as a warning. However, no war broke out and the situation later de-escalated.

Reconciliation efforts have been made by both sides, but the conflict continues to persist to this day. Differences in political ideologies, sovereignty claims, and military rivalries remain the main factors driving tension between PRC and Taiwan. According to a report from Focus Taiwan, the Taiwanese Ministry of Defense has explained the military activities of Chinese ships deployed by mobilizing three warships in Taiwan's waters. Sun Li-fang stated that the third ship was heading north towards the Taiwan Strait and escalating its military activities around Taiwan. PRC regularly sends ships and fighter jets to Taiwan's airspace and waters. The Ministry also stated that from Friday to Saturday, 33 People's Liberation Army aircraft and 10 navy ships were detected around Taiwan. Twelve of these aircraft had crossed the middle line of the Taiwan Strait or entered Taiwan's air defense identification zone.

According to a report from Outlook India, in April 2023, the Chinese military stated that they were ready for war after completing large-scale combat exercises around Taiwan for three days. This was in response to President Taiwan's Ing-wen's visit to the United States. Four months later, in August, PRC intensified war exercises around Taiwan. PRC even fired missiles into Taiwan's waters and airspace after former House Speaker Nancy Pelosi's visit to Taipei. Taiwan's Military Response The Taiwanese military maintains a tight situation by deploying aircraft, ships, and coastal defense systems in response to Chinese warships (Sulthoni, 2023).

In August 2022, the Brookings Institution released a more precise estimation of potential casualties from various scenarios in a potential conflict. Despite the significant advancements in the Chinese military, the outcome of a war over Taiwan remains uncertain due to its complexity. What is certain is that the losses on both sides, including Taiwan, would be catastrophic. In the first scenario proposed by Brookings, which involves a naval battle with a focus on submarines, China would try to impose a blockade on Taiwan while the United States would defend the island with naval convoys. If the US managed to disrupt Chinese communications, they would only lose 12 warships and sink 60 Chinese submarines. However, if China maintained its communications, they could potentially sink 100 US warships while only losing 29 submarines in return. In the second scenario, which envisions a broader conflict involving jets and missiles striking multiple locations, including Southeast China, Taiwan, and US bases in the region, the outcomes vary. If China's attack was successful, they could destroy 40 to 80 US and Taiwanese warships at the cost of around 400 Chinese planes. On the other hand, if the US prevailed, they could significantly weaken the Chinese military in the region by shooting down over 400 PLA

aircraft, albeit with significant losses to their own jets (McCoy, 2023).

Taiwan, its Potential and Relationship with PRC

First and foremost, it should be noted that the People's Republic of China (PRC) and Taiwan have a strong economic partnership. Both countries, situated in the Asia Pacific region, play a crucial role in driving economic activities in the region, especially in industries and trade. The medium and long-term economic growth prospects in the Asia Pacific are influenced by various factors such as demography, productivity growth, and the emergence of the digital economy, aligning with the increasingly digitalized global economy. As a result, the potential impact of tensions in the Taiwan Strait has been foreseen by both Taiwan and the PRC. This conflict transcends territorial and socio-cultural issues, requiring a comprehensive examination and understanding of multiple dimensions.

Advanced nations' economic prowess, the digitalization of the economy, and their policy influence in certain Asia Pacific countries, including Taiwan and the PRC, are among the contributing factors. Despite military confrontations and tensions, PRCand Taiwan maintain a relatively stable relationship. In 2020, 44% of Taiwan's total exports were to the PRC, marking a 12% increase from the previous year. Taiwan holds a dominant position in the Semiconductor Foundry Market, with Taiwanese companies contributing over 60% of metal-casting companies' total revenue in the country. Taiwan's Semiconductor Manufacturing Co (TSMC), the largest metal-casting company globally, caters to major tech firms like Apple, Qualcomm, and Nvidia (CNBC, 2021).

The relationships between Taiwan, the PRC, and the United States are complex. The Taiwan Relations Act of 1979, passed after the normalization of US-PRCrelations, dictates that the US should not engage in military conflicts with Taiwan but can provide weapons or technology for defense if needed. The US has sold over Rp300 trillion worth of arms to Taiwan since 2010. Taiwan is recognized de facto by 23 countries and serves as a significant economic hub in Asia, attracting investors alongside Hong Kong and Singapore. Despite PRCpressure on countries not to recognize Taiwan diplomatically, Taiwan continues to foster trade and economic cooperation with various nations in the EU and Asia Pacific without necessitating formal diplomatic acknowledgment (Media Indonesia, 2021).

US Response to the PRC - Taiwan Conflict

The conflict between PRC and Taiwan, as mentioned above, is also a concern for the United States. In an interview with the media last August, US President Joe Biden stated that the US will help and defend the interests of its allies, not only NATO member countries in Europe, but also its allies in the Asia Pacific region, including South Korea, Japan, and Taiwan. Specifically regarding Taiwan, a White House spokesperson emphasized that US support for Taiwan remains unchanged. Looking back to 2020, when the US was still led by President Donald Trump, the US approved a $5.1 billion arms sale to Taiwan, a policy that continues under Joe Biden. In support of Taiwan, the Biden administration has quietly sent some of its military personnel to Taiwan for joint exercises, including

Navy personnel and US Special Operations Forces. Approximately 26 US personnel and supporting forces trained with Taiwanese ground forces, while the Navy conducted exercises on small training ships. This demonstrates that US-Taiwan relations have been going well. Once again, the US support for Taiwan is rooted in the Taiwan Relations Act, which includes defense relationships. Furthermore, the US President is even willing to visit Taiwan if the island is attacked by PRC. The unchanged and supportive stance of the US towards Taiwan has elicited negative reactions from PRC. PRC's Ambassador to the UN, Zhang Jun, stated that the reunification mission of Taiwan with PRC will be carried out peacefully. Zhang Jun also stated that PRC is not a troublemaker, indirectly referring to the West regarding military deployments in the Middle East sponsored by the US in recent years. This statement was supported by a spokesperson from the Chinese Ministry of Foreign Affairs, Wang Wenbin, who emphasized that PRC's sovereignty over Taiwan is non-negotiable. The Taiwan issue is PRC's internal affair, and should not involve foreign parties, including the US and its allies. Based on the above description, it is evident that each party has interests in addressing the issues in the region, which can be understood within the framework of each country's national interests. The US, as a rival to PRC and a stakeholder in the Asia-Pacific region, sees the Taiwan case as not solely an internal issue of PRC but also in the context of US interests in the region, including economic interests. Therefore, from the US perspective, to secure its interests, it must be involved in the Taiwan-PRC issue. Conversely, PRC is trying to keep the Taiwan issue from becoming an external issue and reiterates that Taiwan is a domestic matter for PRC.

War Chip

The emergence of Taiwan as a dominant force in the semiconductor industry began in 1974 at a renowned restaurant in downtown Taipei famous for its soy milk and steamed buns. During the 1970s, the Taiwanese government established the Industrial Technology Research Institute, tasked with conducting research in the realm of silicon chips. By 1975, this government organization had successfully pioneered a method for producing 7-micron technology chips, paving the way for the establishment of Taiwan's inaugural chip manufacturer, United Microelectronics Corporation (UMC). Building upon UMC's accomplishments, the government of Taiwan allocated $100 million in funding, supplemented by a $58 million investment from Philips, to support the establishment of Taiwan Semiconductor Manufacturing Company (TSMC) by Morris Chang. An electrical engineering Ph.D. graduate from Stanford University with a background in various American silicon companies, Chang has since asserted Taiwan's position as a dominant force in semiconductor production, propelling the nation to the summit of the semiconductor industry. Semiconductors are a vital component in a multitude of technologies, ranging from household appliances to military equipment, and the industry's value exceeds $580 billion. Morris Chang, hailed as the "Zeus of Chipworld" at the age of 91, is recognized globally for his expertise in economic diplomacy and for

revolutionizing chip fabrication technology through TSMC's cutting-edge manufacturing facilities (Heffernan, 2022).

Taiwan Semiconductor Manufacturing Company Ltd (TSMC) is a leading player in the global semiconductor industry, producing cutting-edge chips for digital devices and weapons. TSMC is responsible for over 90% of global chip production, earning the Taiwanese chip sector the nickname "silicon shield." TSMC supplies processors to major companies like Apple and Qualcomm, with Apple's A and M series chips being among its top products. As Apple's largest customer, TSMC commands a significant portion of the smartphone processor market and also produces microcontrollers widely used in cars(Leswing, 2022). Apple is TSMC's largest customer, and the manufacturer produces the majority of the world's 1.4 billion smartphon processors. Around 60% of the simple microcontrollers reported are also used by car manufacturers and are made by the company (Nguyen, 2023). Apple's new laptops will contain chips from the industry leader Taiwan Semiconductor Manufacturing Company sized at 3 nanometers. For comparison, a human hair is about 50,000 to 100,000 nanometers in size (Tewari et al., 2022).

TSMC's advanced technology allows it to manufacture chips at incredibly small sizes, with its upcoming 3-nanometer chips set to power Apple's new laptops. The company's expertise has also attracted other tech giants like Nvidia and AMD Holding, with TSMC playing a key role in powering their latest chip innovations. Despite facing supply challenges, particularly in meeting the high demand for Nvidia's chips, TSMC's reputation for quality and innovation remains unmatched in the industry (Fyler, 2023). AMD Holding, which chose to license their ARM processor designs, saw a surge due to TSMC's support. Backed by abundant investments, such as pouring $100 billion to develop chip-making capabilities, TSMC has transformed into the top choice for turning chip designs into reality. Not only capable of producing chips with micrometer processes, but also nanometers. Not 10 or 7 nanometers, but now able to make chips with 5 nanometer technology. Succeeding in making the Apple A15, an Apple-designed System-on-Chip (SoC) with 15 billion transistors inside, a reality due to TSMC's 5 nanometer strength (Zaenudin, 2021).

The interconnectedness between Taiwan and mainland China is crucial for the success of Taiwan's semiconductor industry. While Taiwan's industry thrives on its technological advancements and global connectivity, the support from mainland China in terms of trade and economic exchanges has been instrumental. The complex nature of semiconductor manufacturing underscores the importance of seamless collaboration and trade relationships across borders (BBC, 2023). While the semiconductor industry in PRC has grown from around 1,300 registered companies in 2011 to 22,800 in 2020, this growth has been concentrated on manufacturers producing larger and less technologically advanced chips. The latest chips are sized at five nanometers or smaller; PRC's industry is largely dominated by chips sized at 24 nanometers or larger. Last year, Semiconductor Manufacturing International Corporation (SMIC) PRC, the largest chip maker in PRC, reportedly produced 7-nanometer chips, representing a two-generation leap in technology advancement (Hawkins, 2023).

By comparison, PRC's state-owned SMIC chip fabrication plant only began producing 14nm chips at the end of 2019, placing them at least two generations behind leading semiconductor fabs in the US and East Asia. Over the years, government support has boosted domestic chip production. Chinese chip manufacturers received subsidies amounting to $50 billion over the past two decades, along with preferential loans and procurement incentives. PRC's semiconductor exports reached $101 billion in 2019, a 20 percent increase from the previous year (Diwakar, 2021). In 2016, PRC launched the world's fastest supercomputer – all made without US chips (Reynold, 2023). Taiwan has its own concerns regarding PRC, particularly Chinese companies' efforts to recruit chip talents and technical knowledge. The government strictly limits Taiwan's chip investments in PRC, Taiwan's largest trading partner (Reuters, 2022).

Taiwan, a democratic nation with its own government located around 100 miles from mainland China, is renowned for producing the most advanced microchips in the world. These microchips serve as the brainpower behind various technological innovations, ranging from smartphones and modern vehicles to artificial intelligence and military aircraft. Taiwan's significance as a trading partner is evident, with the United States being its second-largest trading partner, supporting a significant number of jobs in America through exports to Taiwan (Taiwan Government East Asia and Pacific Affairs, 2022). The United States has maintained a consistent approach towards Taiwan for many years, guided by a One China policy outlined in the Taiwan Relations Act and various joint communiqués. Efforts are being made to incentivize American companies, such as Intel and TSMC, to invest in chip manufacturing facilities in the US, boosting domestic production and reducing reliance on Taiwan for critical technologies (Leswing, 2022).

TSMC, a leading chip manufacturer globally, is pushing the boundaries by developing 3nm production processes and aiming to introduce 2nm chips by 2025. With the US law mandating assistance in defending Taiwan since 1979, securing the island aligns with broader national interests in technology and economic security. The race for advanced microchips poses risks for both China and the US, as these chips are vital components in various industries, including defense, communications, and healthcare. However, diversifying chip production facilities outside of Taiwan through practices like "friendshoring" can mitigate these risks and reduce global dependencies (Lee et al., 2021). This technological marvel consists of small patterns, measured in nanometers, etched on thin slices of silicon called "wafers" (Engel et al., 2023).

There are concerns that the silicon shield may not hold forever, and a Chinese invasion could threaten the global economy with a large blast. However, if TSMC builds new manufacturing facilities elsewhere, it will reduce the world's dependence on Taiwan for chip production. The practice known as "friendshoring" can centralize production and procurement of materials outside of Taiwan, in countries friendly with the United States. In the midst of escalating trade tensions and technology disputes between the US and China, Taiwan finds itself at a crossroads. Foreign companies like Google are looking to Taiwan as a gateway to the Asian market, investing heavily in AI and digital marketing

initiatives. The semiconductor industry is a battleground for Taiwan and China, each striving to enhance their chip production capabilities in a bid for technological dominance (Kirk, 2020).

Additionally, for years, Taiwan and PRC have exchanged accusations of using "dollar diplomacy," dangling large monetary packages in return for recognition, although the Taiwanese government has stated that they will no longer engage in such practices and that their aid is more appropriate than the lavish infrastructure projects often offered by Beijing. However, some countries still entrust this to Taiwan rather than PRC. The countries that still maintain relations with Taiwan are Belize, Guatemala, Paraguay, Haiti, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, the Marshall Islands, Palau, Tuvalu, Eswatini, and the Vatican City (Bukit, 2022).

The chip war between Taiwan and PRC is intensifying competition in the semiconductor manufacturing industry. Taiwan is known as the world's largest chip production center, while PRC is striving to enhance its own chip production capabilities. Tensions between the two countries are arising because Taiwan is viewed as a separate territory from PRC. One of the triggers for this chip war is PRC's efforts to increase self-sufficiency in chip production (CSS Taiwan, 2022). For Washington, allowing a stronger PRC to control TSMC factories in a conflict would threaten US military and technological leadership. Similarly, this is the case with PRC. PRC accounts for 60% of global semiconductor demand, according to an October 2020 report from the Congressional Research Service. Taiwan has an advanced economy, generating approximately $786 billion in goods and services in 2021.

The US and PRC have been engaged in economic and technological competition. This rivalry continues even though relations appeared to thaw at the Asia-Pacific Economic Cooperation Summit in 2023, when the US and Chinese presidents sat down for a four-hour conversation and agreed to continue military-to-military communication to avoid military accidents (Harper, 2024). By doing so, Biden signaled that he may be willing to slightly veer from his hardline policy to reduce dependence on Chinese technology. His administration did not allow US chip manufacturers to sell to PRC and also encouraged its allies to block exports of high-tech chip manufacturing. The cancellation of chip-making machine shipments to PRC by a Dutch manufacturer, ASML, was due to pressure from Washington. The competition for economic and technological supremacy has been ongoing smoothly (Harper, 2024).

Both America and PRC want to break their dependence. Washington has persuaded TSMC to open a US-based chip foundry that will produce advanced semiconductors and is prepared to spend billions to rebuild the domestic chip manufacturing industry. Beijing is also spending a lot of money, but its chip industry lags a decade or more behind Taiwan in many key areas. The Chip War is a practical and valuable reference about why Americans should care about Taiwan's independence and the surprising ways the semiconductor industry is uniting security (Gallagher, 2023). Moreover, the offshoring strategy of the US economy has given Taiwan a significant manufacturing advantage that cannot be regained by Intel, Micron, or other US-owned semiconductor manufacturers

in the near future. One unique insight from the exploration of the Chip War into the development of semiconductors and Cold War-era espionage is that many of the powers associated with the post-Cold War US strategy, including the formation of multilateral supply chains in Asia, are factors contributing to America's current shortages. The United States focuses on innovation and creativity and promotes overseas manufacturing to support economic interdependence (Gallagher, 2023).

The challenge to American-made chips does not solely come from various Japanese chip manufacturers who are able to offer products at competitive prices. Since the early 1980s, driven by the demands of electronics manufacturers to embed customized chips for improved hardware/software integration, a new type of business in the silicon industry called "application-specific integrated circuit" or ASIC emerged. The threat of this chip war requires the US to implement export controls that allow China to advance technologically but restrict its progress to ensure that the US and its allies remain at the forefront of the semiconductor industry. On the other hand, this new policy actively limits China's top semiconductor technology capabilities. Major semiconductor companies in China such as Biren, YMTC, SMIC, and SMEE have all faced setbacks over the years.

Therefore, understanding how China adjusted its strategy in response to the semiconductor export controls in April 2018 against ZTE provides important context to analyze China's reaction to the export controls imposed by the US on October 7, 2015. The ZTE sanctions case is intricate. In summary, ZTE violated US sanctions by selling telecommunications equipment with US chip technology to Iran. ZTE was caught by US authorities in March 2016 and, after a year of legal battles, it admitted guilt, settled with the US government, and paid a $1.2 billion fine in March 2017. However, in early 2018, the US government penalized ZTE for failing to comply with the settlement terms and providing false information to the US government, which ZTE acknowledged (Allen, 2023).

Chokepoint technology refers to technology that creates a heavy reliance on suppliers from the US, Japan, and Europe for China, making it difficult for China to produce replacements domestically. In the public sector, the Chinese government continues to provide significant subsidies for the growth of the Chinese semiconductor industry. The National Integrated Circuit Industry Investment Fund, also known as the "Big Fund of China," was initially launched in 2014 with $21 billion and was renewed in 2019 with an additional $35 billion. These strategic changes were made after the ZTE incident and were officially outlined in Document No. 8 of the Chinese State Council in July 2020, which aimed to promote the integrated circuit industry. Document No. 8 encourages unlimited support for semiconductor projects and instructs regional governments to make efforts to support these projects. It includes financial support measures and exemptions for Chinese semiconductor companies from tariffs and corporate income taxes, with some sectors eligible for a 10-year tax exemption.

However, this strategy has not had the desired impact on the Chinese semiconductor industry. In mid-2022, Apple was planning to purchase advanced NAND memory chips from China's YMTC for use in iPhones but canceled the order due to export controls. Qualcomm, a significant contributor to SMIC's revenue, was considering ceasing SMIC as a supplier even for less advanced chips. Dell also announced plans to stop purchasing chips from China by 2024. As China's semiconductor industry becomes more government-driven and takes harsh actions against foreign companies, this trend of global companies moving away from China is expected to accelerate. (Allen, 2023). For the Chinese semiconductor manufacturing industry, export control measures are no longer relevant due to the focus on achieving economies of scale and organizational learning domestically. This is evident from the increasing number of Chinese chip companies that have closed in recent years. To address this challenge, China is adapting its strategy by:

1. Reducing reliance on foreign semiconductor imports, which amounted to over $350 billion in 2020. Losing access to foreign chips and technology could have significant economic consequences.
2. Mitigating potential economic pressure from the US and its allies. China's focus on AI and semiconductors is aimed at gaining strategic advantages rather than retaliating against foreign countries.
3. Increasing global economic dependence on China in the semiconductor industry, particularly as a major customer. This shift aligns with China's goals of gaining economic and security benefits from AI technology. The ongoing advancements in generative AI underscore the importance of continuous progress in AI technology for economic and national security reasons.

The Chip War represents a significant turning point for Taiwan, highlighting its crucial role in global semiconductor production. While it presents opportunities for Taiwan to strengthen its position and alliances, it also poses risks due to power struggles between the US and the PRC. Chris Miller, an expert in international history, provides valuable insights into the history and significance of the semiconductor industry and Taiwan's pivotal role in the current geopolitical landscape (Chen, 2019). One of the main concerns for Taiwan is the vulnerability of TSMC's chip fabrication plants, located near the coast facing the PRC. This proximity to a potential invasion point raises security risks for Taiwan, particularly considering the strategic importance of these facilities. Further analysis and understanding of these risks are crucial for navigating the complexities of the Chip War (Gallagher, 2023). The danger for Taiwan is that TSMC's chip fabrication plants, known as fab fabs, are right in the line of danger. The metal casting plant is located in a narrow strip along the west coast of Taiwan facing PRC, about 130 kilometers away from the nearest point. Most of the area is close to what is known as the red coast, considered by military strategy experts as a potential landing site for a Chinese invasion. TSMC's headquarters and its group of factories in Hsinchu in northwestern Taiwan are only 12 kilometers from the coast (Feng, 2022).

Chip Diplomacy

Chip Diplomacy refers to the efforts made by countries, particularly the United States and PRC, to influence or control the semiconductor chip industry. As a vital industry in modern technology, semiconductor chips have significant power in various sectors, including communication, transportation, and defense. Both countries utilize various methods, including regulations, investments, and international cooperation, to strengthen their positions in the semiconductor chip industry. This includes the development of chip technology, control over raw material supplies, and access to global markets. Chip Diplomacy also involves efforts to influence other countries in terms of semiconductor chip policy, such as through economic sanctions or technological cooperation. The goal is to ensure that these countries have control over this crucial technology and can influence the global market according to their interests.

In the context of geopolitical competition between the United States and PRC, Chip Diplomacy plays a crucial role as semiconductor chips are seen as key to securing a dominant position in global technology and economy. Therefore, the competition between these two countries in the semiconductor chip industry is becoming increasingly intense and complex. In 2021, there was an instance of chip diplomacy when TSMC revealed their intention to construct a billion-dollar plant in Arizona. However, the facility is not set to be operational until 2025 at the earliest and may not have the capabilities to manufacture chips at the anticipated technological scale by that time. The Arizona plant is projected to produce chips at a 5-nanometer (nm) scale initially, with potential plans to advance to 3nm in the future (Vidra, 2023).

After overseeing the groundbreaking of TSMC's $12 billion chip production plant in Phoenix in 2020, the governor of Arizona announced just two years later that TSMC had finished construction of its main facility. President Biden signed the CHIPS and Science Act, totaling $52 billion, and Commerce Secretary Gina Raimondo stressed that relying on Taiwan for chips is unsustainable and risky. Taiwan is gradually enhancing its chip capabilities by investing in supportive countries. TSMC has established wafer plants in Arizona, USA, and Kumamoto, Japan. Plans for TSMC to set up operations in Veneto, Italy have been put on hold in favor of opening a new representative office in Milan. Taiwan can also engage in chip diplomacy with neighboring regions. For developing countries seeking to strengthen their value chains, significant investments from technology leaders like Taiwan will be appealing (CSS Taiwan, 2022).

In addition, Vanguard International Semiconductor, a subsidiary of TSMC, is planning to construct the most advanced manufacturing facility ever seen in Singapore. Similarly, United Microelectronics Corporation, the world's third-largest chip manufacturer based in Taiwan, is investing $5 billion to build a plant nearby. Furthermore, Applied Materials, a US semiconductor equipment provider, has initiated the development of a new $450 million facility in Singapore. As part of their "Singapore 2030" expansion strategy, the company aims to expand its workforce by approximately 40 percent to over 3,500 employees over the next eight years (Hsueh Chin, 2023).

The strong relationship between Malaysia and Singapore in the semiconductor industry allows for a combined strengthening of their respective strengths. The growth of the APT cluster in Malaysia and Singapore's increasing semiconductor manufacturing share enables the production and packaging of chips for commercial use in close proximity, reducing supply chain disruptions. Taiwan's membership in APEC since 1991 provides a foundation for enhancing regional and global economic configurations. As San Francisco hosts this year's APEC Summit, Taiwan may seek support from the United States and other partners to enhance its international economic engagement, potentially including participation in the Indo-Pacific Economic Framework. Taiwan's positive economic role in the region may be less politically controversial than other diplomatic actions. Taiwan's chip diplomacy strategy in Southeast Asia involves seeking support from ASEAN to participate in regional trade and economic architecture, including efforts to join the Comprehensive and Progressive Trans-Pacific Partnership. Support from countries like Japan and Canada, as well as trade and investment hubs, can bolster Taiwan's prospects.

Using "chip for diplomacy," Taiwan can engage ASEAN countries in cross-Strait issues and potentially leverage their role as mediators. Hosting cross-Strait dialogues like those facilitated by Singapore in the past can help lower tensions and demonstrate a willingness to engage in exchanges. As the ASEAN Chair, Indonesia can use its position to de-escalate tensions and Taiwan can utilize its economic and security strength to activate neighboring countries in maintaining peace in the region. Expanding the Silicon Shield to Southeast Asia can engage key countries in promoting peace across the Taiwan Strait (CSS Taiwan, 2022). As is known, Silicon Shield encompasses all the amazing things today - whether it's TVs, laptops, mobile phones, or various wearable devices - stemming from what mankind successfully created in 1959. After the transistor, the most fundamental foundation of the electronic or digital world emerged through the hands of technicians at Bell Labs (now owned by Nokia) in 1947, pioneered by engineers at Texas Instruments and Fairchild Industries - Jack Kilby and Robert Noyce. A module embedding more than one transistor in a complete unit called an integrated circuit (IC) was created in 1959 (Zaenudin, 2021).

Chip Diplomacy refers to Taiwan's political strategy of leveraging its technological advantage in the semiconductor industry to strengthen its foreign relations, especially with countries that have strategic interests in the global technology competition. As one of the leading chip producers in the world, Taiwan has a strong position in supplying technology to various countries. In the context of PRC-Taiwan relations, Chip Diplomacy has a significant impact. PRC has long sought to integrate Taiwan into its territory and claims the island as part of its territory. However, Taiwan has rejected these claims and continues to fight to maintain its independence. With Taiwan's technological advantage in semiconductors, the country has the power to curb PRC's ambitions in terms of technology investment in Taiwan's partner countries. For example, Taiwan can offer better deals in terms of chip supply to countries that do not want to depend on Chinese technology.

Furthermore, Taiwan has also intensified efforts to strengthen its defense industry through semiconductor technology, which can be used in a technological war against PRC. Thus, chip diplomacy has become an important part of Taiwan's defense strategy in facing threats from PRC. Overall, Taiwan's Chip Diplomacy has played a significant role in strengthening its foreign relations and facing pressure from PRC. By leveraging its technological advantage, Taiwan can strengthen its position in the global technology competition and maintain its sovereignty as an independent country.

Impact of Taiwan-PRC Conflict and US Involvement in War Chip Against Indonesia

The Taiwan-PRC conflict is a political and military conflict that has been going on for decades. Taiwan, which has its own government, is recognized by some countries around the world as a separate entity from PRC. However, PRC views Taiwan as part of its territorial territory. The impact of this conflict on Indonesia is the potential for war or tension between PRC and Taiwan, which could affect regional security stability in Southeast Asia. This conflict could also affect Indonesia's diplomatic relations with both parties. Furthermore, the involvement of the United States in the dispute between Taiwan and PRC could also impact Indonesia. The US, as a Taiwan ally, indirectly could strengthen Taiwan's military position and increase tensions between the two sides. This could also provoke a response or attitude from PRC that could impact security and stability in the Asia-Pacific region in general.

Firstly, Taiwan serves as a proxy war for wider interests between the US and PRC, while the two giant countries have connections to Indonesia's traditional export goals of 21% and 11% respectively of total exports. "This means that 32% or a clip of Indonesia's exports are at risk, which could lower the trade surplus," Secondly, geographically, Taiwan's position in Asia means its status has a greater influence than Ukraine-Russia. Perceptions of investment in the Asian region will impact the continuation of the conflict in Taiwan. Thirdly, PRC's move to sanction Taiwan adds to the long list of countries that have imposed food export protection measures after 30 countries previously took similar actions for various reasons. "This is actually an opportunity for Indonesia to penetrate the export of processed foods, fruits, and vegetables to Taiwan. So far, vegetable exports to Taiwan are quite large. Indonesia also has a competitive advantage in food and beverage raw materials and processed foods," (Li, 2023). Tensions between PRC and Taiwan could have broad impacts on many countries, including Indonesia. One potential sector that could be affected is the automotive industry, which is at risk of paralysis. Currently, Indonesia imports many semiconductors chips from Taiwan (Sandi, 2023).

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the discussion above, the following conclusions were obtained:

The dynamics of the relationship between PRC and Taiwan can be described as a pattern of 'subordination' and has been going on for a long time. The conflict between PRC and Taiwan has been ongoing for decades and began after the end of the Chinese Civil War in 1949. Complex relationships also exist between Taiwan, PRC, and the United States. The Taiwan Relations Act of 1979, enacted a few months after the normalization of US-PRC relations four decades ago, stipulates that the US shall not engage in military conflicts with Taiwan. Interestingly, the US can offer weaponry or technology to Taiwan so they can defend themselves if ever attacked.

The conflict between PRC and Taiwan, as mentioned above, is also a concern for the United States. In an interview with the media last August, US President Joe Biden stated that the US will help and defend the interests of its allies, not only NATO member countries in Europe, but also its allies in the Asia Pacific region, including South Korea, Japan, and Taiwan. Specifically regarding Taiwan, a White House spokesperson emphasized that US support for Taiwan remains unchanged. Looking back to 2020, when the US was still led by President Donald Trump, the US approved a $5.1 billion arms sale to Taiwan, a policy that continues under Joe Biden.

Taiwan has emerged as a major player in the global chip industry, with Taiwan Semiconductor Manufacturing Company (TSMC) leading the market with over 90% contribution to global chip production. With advanced technology up to 3 nanometers, TSMC has major customers such as Apple and Nvidia, making it a key player in the global semiconductor competition. On the other hand, PRC has heavily invested in its own chip industry, but still lags behind Taiwan in terms of the technology required for the latest chip production. Tensions between Taiwan and PRC, as well as the economic and technological competition between the United States and PRC, are also increasing, highlighting the importance of Taiwan's independence and its impact on the global semiconductor industry.

Chinese government's aggressive support for the semiconductor industry, as outlined in Document No. 8, has led to a significant shift in the global semiconductor market. This strategy, coupled with export controls and economic pressures, has driven foreign companies to reconsider their supply chains and potentially avoid Chinese suppliers, leading to an exodus of global companies from PRC. Additionally, Taiwan's crucial role in global semiconductor production has placed the country in a precarious position in the midst of the ongoing Chip War between the United States and PRC. The proximity of Taiwan's semiconductor fabrication plants to the potential landing sites for a Chinese invasion poses a significant threat to the country's semiconductor industry and its position in the global market.

Chip Diplomacy plays a crucial role in the global semiconductor industry, particularly in the context of the United States-PRC competition and Taiwan's position as a key player in the market. As countries like Taiwan seek to leverage their technological advantages to strengthen foreign relations and maintain independence, the semiconductor industry becomes a battleground for influence and power. Through strategic investments, technology development, and regional partnerships, countries are able to secure their positions in the global market and shape the future of technology and economy. Chip Diplomacy is not just about securing supply chains and market access, but also about using technological prowess to enhance diplomatic relations and geopolitical influence.

The ongoing conflict between Taiwan and PRC has the potential to impact Indonesia in various ways. The potential for war or tension between the two countries could affect regional security stability in Southeast Asia and Indonesia's diplomatic relations with both parties. The involvement of the United States in the dispute could further complicate the situation and impact Indonesia's trade relations, particularly in the automotive industry which relies on semiconductor chips imported from Taiwan. However, the conflict also presents opportunities for Indonesia to expand its exports to Taiwan, especially in processed foods and agricultural products, which could help mitigate any negative impacts on trade relations. Overall, it is important for Indonesia to closely monitor the situation and navigate its diplomatic relationships carefully to minimize any potential negative consequences.

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