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The Impact of Changes in Geopolitical Patterns on Global Economy and Trade —— a focus on the investment and industrial chain sector

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KEYWORDS

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ABSTRACT

Geopolitical dynamics have always played a pivotal role in shaping the global economic landscape, and recent shifts driven by evolving alliances, trade disputes, technological advancements, and emerging regional powers have presented both challenges and opportunities for countries and businesses operating within this sector. The restructuring of the global industrial chain holds significant implications for China and emerging markets in East Asia. China's increasing influence and geopolitical interference, coupled with disruptions in the high-tech industrial chain caused by US restrictions, have reshaped the geopolitical landscape and created imbalances in global market supply dynamics. Leading economies can cooperate to tackle the human toll of climate change and public health crises by sharing technology in advanced manufacturing and renewable energy. By effectively navigating these changes and embracing collaborative approaches, countries can adapt to the evolving geopolitical landscape, overcome challenges, and capitalize on opportunities for sustainable growth and development in the investment and industrial chain sector.

1. Introduction

The dynamics of global geopolitics have always played a crucial role in shaping the global economy and trade. The intricate relationship between political power, economic interests, and international relations has a profound impact on the investment and industrial chain sector. In recent years, the world has witnessed significant shifts in geopolitical patterns, driven by various factors such as evolving alliances, trade disputes, technological advancements, and emerging regional powers. These changes have brought about both challenges and opportunities for countries and businesses operating within the investment and industrial chain sector.

The current state of economic globalization has prompted American society to question its effects like never before. The long-standing industrial division of labor and geopolitical stability between China and the United States are now facing significant challenges. [1] The existing framework, which shaped the global economic order, is on the verge of being disrupted. Instead, the two major economies, China and the United States, are engaged in intense competition and even conflicts regarding investment, economic, and trade issues, all revolving around the restructuring of the geopolitical pattern.

The repercussions of the global industrial chain restructuring, driven by the United States, will be particularly impactful on China and emerging markets in East Asia. The consequences, especially on the global high-tech industrial chain, are expected to have far-reaching implications. [2] As the United States seeks to assert stricter rules for investments in advanced technologies, such as global technology, it will pose a significant test for Sino-American relations. It is crucial to navigate this situation carefully to avoid any extreme developments in the geopolitical landscape.

Under the premise of averting an escalation of the geopolitical situation, the global market will focus on exploring ways to enhance the resilience of the industrial chain and investment in the face of geopolitical shifts. This emphasis on resilience aims to mitigate the risks associated with disruptions in global supply chains, geopolitical tensions, and trade disputes. Countries and businesses must adapt to the new geopolitical realities and develop strategies that reduce their dependence on specific markets and industries. [3] By doing so, they can minimize risks and enhance their own resilience.

One of the key strategies to enhance resilience is to strengthen domestic industries. Countries can invest in research and development, innovation, and technological capabilities to reduce reliance on external sources. By nurturing a robust domestic industrial base, countries can better withstand geopolitical shocks and maintain economic stability. This approach has been particularly evident in China's efforts to advance its high-tech industries and reduce its reliance on foreign technologies. [4]

Moreover, diversifying supply chains and sourcing strategies can help mitigate risks associated with geopolitical tensions. Businesses can explore alternative sourcing locations and establish strategic partnerships in different regions to ensure a more balanced and resilient supply chain. The concept of nearshoring, which involves locating production facilities closer to end markets, has gained traction as a means to reduce vulnerabilities associated with long-distance supply chains. [5] By spreading production and sourcing across multiple countries, businesses can minimize the impact of geopolitical disruptions on their operations.

Investment diversification is another crucial aspect of enhancing resilience. Investors and multinational corporations often reassess their investment strategies in response to geopolitical changes. This can involve diversifying investment portfolios across different countries and industries to spread risks and capitalize on emerging opportunities. Countries can attract investment by creating favorable business environments, providing incentives, and ensuring political stability. Strengthening regional economic integration through initiatives like free trade agreements and economic blocs can also enhance investment opportunities and facilitate diversification.

Furthermore, fostering international collaboration and dialogue is essential to navigate the complexities of the evolving geopolitical landscape. Countries and businesses must work together to establish transparent and predictable trade policies, promote open markets, and facilitate investment flows. Multilateral organizations, such as the World Trade Organization (WTO), play a crucial role in facilitating negotiations and resolving trade disputes. Engaging in constructive dialogue and seeking win-win solutions can help alleviate tensions and create an environment conducive to economic growth and stability.

In conclusion, the ongoing questioning of the effects of economic globalization in American society, along with the evolving geopolitical landscape, is reshaping the global economic order. The competition and conflicts between China and the United States regarding investment, economic, and trade issues are leading to a restructuring of the global industrial chain. This restructuring, particularly in the high-tech sector, will have far-reaching consequences. However, by focusing on enhancing the resilience of the industrial chain and investment in the face of geopolitical shifts, countries and businesses can navigate these challenges and stabilize the development of the world economy. [6] Strengthening domestic industries, diversifying

supply chains and sourcing strategies, diversifying investments, and fostering international collaboration are all key strategies to enhance resilience and adapt to the new geopolitical realities. By embracing these strategies, countries and businesses can mitigate risks, capitalize on opportunities, and build a more robust and sustainable economic foundation.

2. The Impact of Industrial Chain Restructuring on China and East Asian Emerging Markets: Navigating Geopolitical Shifts and Technological Challenges

The restructuring of the global industrial chain has profound implications for China and emerging markets in East Asia. China's growing influence in the global economic and trade pattern is gradually reshaping the geopolitical landscape, particularly in the Middle East, which has traditionally been dominated by the United States. [7] By strengthening cooperation with Russia and other BRICS countries and expanding the Belt and Road Initiative, China aims to assert its position and expand its influence. Simultaneously, the high-tech industrial chain, which determines the future development of the world, faces significant disruptions due to the United States' suppression of China's chip-related industries. [8] This has resulted in an imbalance in the global market's supply dynamics. In response, China is implementing countermeasures in high-tech industries, raw materials, and new energy sectors. Additionally, the implementation and expansion of the Friendshoring policy by the United States have implications for the manufacturing and investment environment of economies in Central and South America and Southeast Asia. This article will explore the multifaceted impact of industrial chain restructuring on China and East Asian emerging markets, considering the geopolitical shifts, technological challenges, and regional market dynamics.

2.1 China's Growing Influence and Geopolitical Interference

China's rise as a global economic power has enabled it to gradually reshape the geopolitical landscape. In the Middle East, traditionally dominated by the United States, China's increasing economic engagement has allowed it to interfere in the region's geopolitical situation and energy market. Through initiatives like the Belt and Road strategy, China has strengthened cooperation with Russia and other BRICS countries, expanding its influence and challenging the United States' long-standing dominance. This evolving dynamic has the potential to create tensions and competition between China and the United States, particularly in strategically important regions.

China's expanding influence in the Middle East and beyond not only impacts global economic and trade patterns but also has significant implications for the energy market. As China secures access to crucial resources, it disrupts the traditional balance of power and challenges the United States' control over energy resources. This shift in power dynamics may lead to increased geopolitical tensions and competition between the two superpowers.

2.2 Disruptions in the High-Tech Industrial Chain

The high-tech industrial chain plays a pivotal role in shaping the future development of the global economy. However, it has been severely impacted by the restructuring of the industrial chain, particularly due to the United States' suppression of China's chip-related industries. [9] These actions have resulted in an imbalance in the supply of the global market, affecting businesses worldwide and introducing uncertainties in the availability and pricing of critical components and technology.

The United States' measures to restrict China's access to advanced technologies and semiconductor manufacturing capabilities have highlighted the vulnerabilities of global supply chains. This disruption has compelled countries and businesses to assess their reliance on foreign technologies and develop domestic capabilities in high-tech industries. China, recognizing the importance of self-reliance, has intensified its efforts

to enhance its technological capabilities and reduce dependence on foreign sources. This has led to increased investments in research and development, innovation, and talent development.

2.3 China's Countermeasures and Turmoil in the Regional Market

In response to the challenges posed by the restructuring of the industrial chain, China has been implementing countermeasures to safeguard its interests and reduce vulnerabilities. The country recognizes the need to strengthen key industries to ensure economic stability and mitigate disruptions. By focusing on high-tech sectors, raw materials, and new energy, China aims to enhance its self-reliance and technological advancement.

To achieve this, China has been investing heavily in research and development (R&D), innovation, and domestic production capacity. The government has implemented policies and initiatives to support the growth of industries such as artificial intelligence, biotechnology, semiconductors, and renewable energy. [10] These efforts are aimed at reducing China's dependence on foreign technology and resources while fostering the development of domestic industries.

However, China's pursuit of self-reliance and technological advancement has led to intensified competition within the regional market. As China strengthens its domestic industries, it may disrupt established supply chains and create new dynamics in the global economy. [11] This can have both positive and negative implications for countries in East Asia, particularly emerging markets.

On one hand, the increased competition from China can spur countries in the region to enhance their own technological capabilities and develop new industries. It presents an opportunity for these countries to diversify their economies and reduce reliance on a few key sectors. By investing in R&D, fostering innovation, and improving the business environment, these countries can position themselves as attractive destinations for foreign investment and technological collaboration.

On the other hand, the disruption of established supply chains can create challenges for countries heavily reliant on China as a key trading partner. [12] Changes in trade dynamics, market access, and supply chain disruptions can significantly impact these countries' economies. They must carefully assess the risks and opportunities associated with the evolving geopolitical landscape and adjust their strategies accordingly.

To navigate these challenges, regional cooperation and collaboration become crucial. Countries in East Asia should strengthen their partnerships and work together to mitigate the potential negative impacts and foster resilience. This can involve initiatives such as information sharing, policy coordination, and joint investment in infrastructure projects that promote regional connectivity.

Furthermore, countries in the region should also explore diversifying their trading partners and markets. By expanding trade relationships with other regions, they can reduce their dependence on any single market and mitigate the risks associated with disruptions in the regional market.

In addition to regional cooperation, countries should also focus on enhancing their own competitiveness. This includes investing in human capital development, improving the business environment, and promoting innovation and entrepreneurship. By fostering a skilled workforce, creating a conducive business environment, and encouraging innovation, countries can attract investment and build resilience against external shocks.

It is important for countries in East Asia to remain proactive and adaptable in the face of China's countermeasures and the resulting turmoil in the regional market. [13] By embracing the opportunities presented by China's technological advancements and fostering regional cooperation, countries can navigate the changing dynamics and emerge stronger and more resilient in the global economy.

Reviewing the policies and initiatives implemented by China to support its key industries, it is clear that the country has taken significant steps to foster self-reliance and enhance its technological capabilities. These measures are aimed at reducing dependence on foreign technology, boosting domestic industries, and positioning China as a global leader in strategic sectors.

The "Made in China 2025" initiative outlines specific targets and focuses on high-tech industries, emphasizing indigenous innovation. This strategic plan provides a roadmap for achieving technological advancement and increasing domestic market share in key sectors. The National Integrated Circuit Industry Development Guidelines and the establishment of semiconductor-focused funds demonstrate China's commitment to developing its semiconductor industry. By providing financial support, tax incentives, and research funding, China aims to build advanced chip manufacturing capabilities and reduce reliance on imported semiconductors. The Belt and Road Initiative (BRI) is a comprehensive infrastructure project that promotes Chinese industries and exports. Through investments in transportation, energy, and telecommunications infrastructure, China aims to enhance connectivity and trade, opening up new markets for its domestic industries. China's generous subsidies for new energy vehicles (NEVs) and the establishment of charging infrastructure demonstrate its commitment to reducing dependence on imported oil and combating air pollution. These measures support the growth of domestic NEV production and adoption. The establishment of State Key Laboratories (SKLs) provides significant funding and resources for research and development in key scientific and technological areas. This promotes innovation and supports the development of advanced technologies in priority sectors. China's policies to encourage technology transfer and enhance intellectual property protection aim to acquire foreign technology and expertise while addressing concerns about intellectual property theft. These measures support the development of domestic industries and enhance confidence among foreign investors and technology partners. Furthermore, China's national renewable energy development plans and the provision of financial incentives and favorable policies have positioned the country as a global leader in renewable energy production and deployment.

China's policies and initiatives demonstrate its commitment to fostering self-reliance, enhancing technological capabilities, and reducing vulnerabilities in key industries. By investing in research and development, providing financial support, and implementing favorable policies, China aims to boost domestic industries, reduce dependence on foreign technology, and establish itself as a global leader in strategic sectors. These measures reflect China's determination to shape its economic future and play a prominent role in the global economy.

2.4 Impact of the Friendshoring Policy on Central and South America and Southeast Asia

The implementation and expansion of the Friendshoring policy by the United States have significant implications for the manufacturing and investment environment of economies in Central and South America and Southeast Asia. This policy aims to incentivize companies to relocate their production and supply chains from China to countries in these regions, reducing dependence on Chinese manufacturing. The Friendshoring policy presents both opportunities and challenges for the economies in Central and South America and Southeast Asia. On one hand, it can attract investments, create job opportunities, and stimulate economic growth. On the other hand, it may lead to increased competition among countries vying to attract foreign investment and potential disruptions in existing industrial and trade relationships. To attract investments under this policy, these regions must adopt strategic measures that enhance their appeal to foreign investors.

I. Enhancing Infrastructure and Streamlining the Regulatory Environment

One crucial aspect for attracting investments is the development of robust infrastructure and a streamlined regulatory environment. Improving transportation networks, logistics systems, and digital connectivity is essential to facilitate the movement of goods and information. Upgrading ports, airports, roads, and digital

infrastructure can significantly enhance the ease of doing business and make the regions more attractive to investors.

Additionally, governments should focus on simplifying and streamlining regulations and reducing bureaucratic red tape. Clear and consistent regulations, along with transparent and efficient procedures for permits, licenses, and customs clearance, create a favorable business environment. By improving the regulatory framework, Central and South American and Southeast Asian economies can instill confidence in investors and encourage investment inflows.

II. Developing Skilled Workforce and Fostering Innovation

Investments are often driven by the availability of a skilled and adaptable workforce. Governments in these regions should prioritize education and skills development programs to ensure a competent labor force. Collaborating with educational institutions and industry stakeholders can help design training programs that align with the needs of potential investors, fostering a talent pool that matches industry requirements.

Furthermore, promoting innovation and research and development (R&D) activities is crucial for long-term competitiveness. Governments should invest in initiatives that support innovation, such as funding for R&D, the establishment of technology parks and incubators, and the promotion of collaboration between academia, industry, and research institutions. By nurturing innovation and developing a culture of research and development, these regions can attract technology-intensive investments and foster economic growth.

III. Promoting Regional Cooperation and Integration

Regional cooperation and integration play a vital role in attracting investments and creating a more conducive investment environment. Governments should actively participate in regional trade agreements and initiatives, fostering cross-border investment facilitation. Collaborative efforts in infrastructure development, customs harmonization, and joint marketing can create larger markets, economies of scale, and a more appealing investment landscape.

Moreover, engaging in targeted investment promotion activities is essential. Establishing investment promotion agencies or enhancing existing ones can effectively market the regions to potential investors. This includes participating in international investment forums and exhibitions, organizing investment missions, and conducting targeted marketing campaigns. By actively promoting the regions' investment potential and showcasing opportunities, Central and South America and Southeast Asia can generate interest and attract foreign direct investment.

Attracting investments under the Friendshoring policy requires a strategic approach by economies in Central and South America and Southeast Asia. Improving infrastructure, streamlining the regulatory environment, fostering a skilled workforce and innovation, and promoting regional cooperation are key focus areas. [14] By implementing these strategies, these regions can enhance their appeal to foreign investors, positioning themselves as attractive investment destinations. With a conducive investment environment, these economies can unlock their growth potential, drive economic development, and create mutually beneficial partnerships with investors from around the world.

3. The impact of US investment restrictions on the high-tech sector on the Asia-Pacific market

Under the current international economic order, the Asia-Pacific market has emerged as a key investment destination for developed economies such as the United States, the European Union, and Japan in the high-tech sector. These economies have not only invested heavily in the region but have also transferred significant production technologies, contributing to the growth and development of the high-tech industries in

Asia-Pacific countries. However, recent US investment restrictions have the potential to disrupt the traditional industrial advantages and consumer markets in the region, leading to significant long-term impacts.

The United States has implemented various measures to restrict investment in certain sectors, particularly in high-tech industries, citing national security concerns. These measures include increased scrutiny of foreign investments, the imposition of export controls, and restrictions on technology transfers. The primary target of these restrictions has been China, as the US government aims to curb China's technological development and safeguard its own technological leadership. [15]

One of the key impacts of US investment restrictions in the high-tech sector is the disruption of traditional industrial advantages in the Asia-Pacific market. Historically, countries in the region have relied on foreign investment and technology transfers to build their high-tech industries. The presence of multinational corporations from the United States and other developed economies has provided access to advanced production technologies, research and development capabilities, and global supply chains. This has allowed Asia-Pacific countries to leverage these advantages and become major players in sectors such as electronics, telecommunications, and semiconductors.

However, with US investment restrictions, the flow of foreign investment and technology transfers may be impeded. This can hinder the development of high-tech industries in the region, limiting access to advanced technologies and slowing down innovation and competitiveness. Local companies may face challenges in acquiring cutting-edge technologies and may find it difficult to compete globally. As a result, the traditional industrial advantages that the Asia-Pacific market has enjoyed may be eroded, impacting economic growth and job creation.

Furthermore, the consumer markets in the Asia-Pacific region may also be affected by US investment restrictions. The high-tech sector plays a crucial role in driving consumer demand and economic growth, as products such as smartphones, computers, and electronic appliances have become integral parts of daily life. Restrictions on investment and technology transfers can disrupt the supply chains of these products, leading to potential shortages, increased prices, and reduced consumer choices. Moreover, the Asia-Pacific market has been a significant destination for US high-tech exports. Restrictions on investment may lead to a decline in US exports to the region, affecting US companies' access to lucrative consumer markets. This can have a negative impact on the US economy, as the Asia-Pacific market represents a substantial share of global consumer demand.

The policies and initiatives undertaken by the United States, including the passage of bills like the Infrastructure Investment and Jobs Act, The CHIPS and Science Act of 2022, and the Inflation Reduction Act, as well as the reorganization of the alliance system, can have significant implications for global investment in high-tech manufacturing, particularly in the Asia-Pacific region, including China. The passage of the Infrastructure Investment and Jobs Act and The CHIPS and Science Act of 2022 reflects the United States' commitment to enhancing its domestic high-tech manufacturing capabilities. These measures aim to stimulate investment and production in areas such as infrastructure development, semiconductor manufacturing, and research and development. As the United States strengthens its high-tech manufacturing sector, it may lead to increased competition in the global market, potentially impacting investment flows in the Asia-Pacific region, including China.

The United States' efforts to isolate China in the economic and trade system and supply chain through initiatives like the Indo-Pacific Economic Architecture (IPEF) and the CHIP Four Alliance (CHIP 4) can also influence global investment in high-tech manufacturing. These alliances seek to create alternative economic frameworks and supply chain networks that exclude or limit China's participation. [16] As a result, investors and businesses may reconsider their investment strategies and supply chain configurations, leading

to potential shifts in high-tech manufacturing investments away from China and towards other countries in the Asia-Pacific region. The US-Japan-India-Australia Quadrilateral Security Dialogue (Quad) and the security partnership AUKUS can impact global investment in high-tech manufacturing, including in China. These collaborations focus on security and defense capabilities, but their influence extends to economic and technological domains. Enhanced security cooperation among these countries may lead to increased scrutiny of investments in critical sectors, including high-tech manufacturing, with implications for China's access to foreign investment and technology.

However, it is important to note that the potential influence on global investment in high-tech manufacturing in China is complex and multifaceted. China remains a significant player in the global high-tech manufacturing sector, with established capabilities, a large domestic market, and ongoing efforts to cultivate innovation and technological advancements. While certain policies and initiatives may present challenges, China's strong domestic ecosystem and market attractiveness may continue to attract investments. Additionally, global investment decisions are influenced by multiple factors, including market size, cost competitiveness, infrastructure, intellectual property protection, and regulatory environments. Countries in the Asia-Pacific region, including China, can respond to changing dynamics by implementing policies to enhance their own attractiveness for high-tech manufacturing investments. This includes fostering a favorable business environment, investing in research and development, strengthening intellectual property rights protection, and promoting collaboration between industry and academia.

The policies and initiatives undertaken by the United States have the potential to influence global investment in high-tech manufacturing, including in China. Efforts to enhance domestic capabilities, reorganize alliances, and reshape supply chains can impact investment flows and strategies. However, the actual outcomes will depend on various factors, such as the implementation of policies, responses from other countries, China's ability to adapt and innovate, and the evolving geopolitical and economic landscape in the Asia-Pacific region.

In response to US investment restrictions, countries in the Asia-Pacific region may adopt various strategies to mitigate the impacts and maintain their growth momentum. One approach is to enhance domestic innovation and research and development capabilities. Governments can invest in education and skill development to foster a pool of highly skilled workers who can contribute to technological advancements. They can also provide financial incentives and support for domestic research institutions and start-ups to promote innovation and entrepreneurship.

Another strategy is to strengthen regional cooperation and collaboration. By working together, countries in the Asia-Pacific region can pool resources, share knowledge, and jointly invest in research and development projects. Regional collaborations can help mitigate the impact of investment restrictions by reducing reliance on specific countries and diversifying technology sources. Initiatives such as joint research programs, technology parks, and intellectual property sharing arrangements can foster innovation and strengthen the overall competitiveness of the region.

Countries in the Asia-Pacific region can explore opportunities to deepen economic integration and diversify their trade relationships. By expanding trade partnerships with other regions and countries, they can reduce their dependence on any single market and mitigate the risks associated with investment restrictions. Initiatives such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Regional Comprehensive Economic Partnership (RCEP) provide platforms for countries in the region to enhance regional economic integration and broaden their trade networks. It is worth noting that while US investment restrictions may pose challenges, they also present opportunities for Asia-Pacific countries to accelerate their own technological development. Restrictions can act as a catalyst for increased domestic investment in research and development, driving innovation and the creation of new industries.

By focusing on areas of comparative advantage, such as renewable energy, biotechnology, and artificial intelligence, countries in the region can position themselves as leaders in emerging technologies.

US investment restrictions in the high-tech sector have the potential to disrupt traditional industrial advantages and consumer markets in the Asia-Pacific region. The flow of foreign investment and technology transfers may be impeded, impacting the development of high-tech industries and consumer access to advanced technologies. However, countries in the region can respond by enhancing domestic innovation, strengthening regional cooperation, and diversifying trade relationships. By embracing these strategies, the Asia-Pacific market can mitigate the impacts of investment restrictions and continue to drive economic growth and technological development in the region.

4. A common global response to the trend

4.1 Enhancing domestic innovation and research and development capabilities in the Asia-Pacific region

Countries in the Asia-Pacific region can prioritize the strengthening of education and skill development programs, with a specific focus on STEM education. By investing in educational initiatives at all levels and promoting vocational training, governments can cultivate a highly skilled workforce capable of driving innovation. Additionally, fostering collaboration between academia, research institutions, and industry can facilitate knowledge exchange, technology transfer, and the practical application of research findings. This can be achieved through funding mechanisms, joint research programs, and technology parks. Moreover, allocating a significant portion of the budget to support research and development activities, establishing dedicated R&D funds, and providing tax incentives for private sector investments in R&D can stimulate innovation and technological advancement.

Governments in the Asia-Pacific region can create an enabling environment that supports innovation and entrepreneurship. This involves streamlining regulations, reducing bureaucratic barriers, and establishing incubators and accelerators to support aspiring entrepreneurs and innovators. By nurturing a vibrant ecosystem, countries can attract talent and investment, foster a culture of innovation, and facilitate the commercialization of research outcomes. Emphasizing industry-academia partnerships and promoting technology transfer agreements can bridge the gap between theoretical knowledge and practical application, leading to industry-led innovation. Furthermore, governments can prioritize the development and adoption of emerging technologies, such as artificial intelligence, blockchain, biotechnology, and renewable energy, by providing funding, regulatory frameworks, and incentives for companies and researchers.

Promoting international collaboration and knowledge sharing is crucial for countries in the Asia-Pacific region to enhance their domestic innovation and R&D capabilities. This can be achieved by participating in joint research programs, collaborating with leading research institutions and industry players from other countries, and fostering knowledge-sharing networks. Access to global expertise, best practices, and cutting-edge research can accelerate domestic innovation. In addition, governments should continuously evaluate and improve their innovation and R&D policies. Regular monitoring of key performance indicators, measuring the impact of policies, and soliciting feedback from stakeholders can help identify areas for improvement. Flexibility and adaptability in policy formulation and implementation are essential to foster a dynamic and thriving innovation ecosystem.

By focusing on these three key areas—strengthening education, collaboration, and funding; creating an enabling ecosystem for innovation and entrepreneurship; and promoting international collaboration and continuous improvement—countries in the Asia-Pacific region can enhance their domestic innovation and

research and development capabilities. These strategies will contribute to driving economic growth, fostering technological advancements, and positioning the region as a leader in the global knowledge economy.

4.2 Leading economies work together to address the human toll of climate change and emergent public health crises

The main economies in the world have the opportunity to increase technology sharing in advanced manufacturing and renewable energy, promote the upgrading of global carbon reduction industries, and jointly respond to global emergency public health crises. These collaborative efforts can foster economic resilience, sustainable development, and effective crisis management on a global scale.

One possibility for addressing the impact of changing geopolitical patterns is through increased technology sharing in advanced manufacturing. Advanced manufacturing technologies, such as automation, artificial intelligence, and robotics, have the potential to enhance productivity, efficiency, and competitiveness across industries. By encouraging the sharing of these technologies, major economies can facilitate the diffusion of knowledge and expertise, allowing countries to accelerate their industrial development and reduce the technology gap. This collaboration can lead to the establishment of robust global supply chains, where countries specialize in their comparative advantages, creating a win-win situation for all participants. Similarly, joint efforts in renewable energy technology sharing can contribute to sustainable development and combat climate change. The transition to clean energy sources is crucial in reducing greenhouse gas emissions and mitigating the negative impacts of global warming. Major economies can collaborate in research and development, knowledge exchange, and investment in renewable energy technologies such as solar, wind, and hydroelectric power. Sharing technological advancements and best practices can accelerate the adoption of renewable energy globally, leading to a more sustainable and resilient energy landscape. This cooperation can also create opportunities for job creation, economic growth, and the development of new industries in participating countries.

The main economies can work together to promote the upgrading of global carbon reduction industries. The urgency of addressing climate change requires a collective effort to transition to low-carbon and sustainable industries. Collaborative initiatives can focus on supporting the development and deployment of green technologies, improving energy efficiency, and reducing carbon emissions across industrial sectors. By sharing experiences, knowledge, and resources, countries can accelerate the transformation of their economies, promote sustainable production and consumption patterns, and contribute to achieving global climate goals. Joint responses to global emergency public health crises are crucial for safeguarding public health and minimizing the economic and social impacts of pandemics and other health emergencies. The COVID-19 pandemic has highlighted the interconnectedness of nations and the need for coordinated action. Major economies can strengthen international cooperation in areas such as early detection and response systems, vaccine development and distribution, and public health infrastructure. Sharing data, research findings, and best practices can enhance global preparedness, response capacity, and resilience to future health crises. This collaboration can save lives, protect livelihoods, and facilitate a swift recovery of the global economy.

To facilitate these collaborative efforts, international frameworks and platforms can be established or strengthened. Existing institutions such as the United Nations, World Trade Organization, World Health Organization, and International Renewable Energy Agency can play a crucial role in fostering dialogue, coordination, and cooperation among major economies. Bilateral and multilateral agreements can be forged to facilitate technology sharing, investment flows, and joint research and development initiatives in advanced manufacturing, renewable energy, and public health sectors. Moreover, initiatives such as capacity building programs, joint funding mechanisms, and knowledge-sharing platforms can be established to support developing countries' participation in these collaborative efforts. This inclusive approach can

ensure that the benefits of technology sharing, sustainable development, and crisis response are extended to all nations, promoting global economic stability, resilience, and equitable growth.

The impact of changing geopolitical patterns on the global economy and trade can be effectively tackled through increased technology sharing in advanced manufacturing and renewable energy, promotion of global carbon reduction industries, and joint responses to public health crises. By collaborating on these fronts, major economies can foster economic resilience, sustainable development, and effective crisis management worldwide. These collaborative efforts require international coordination, strengthened institutions, and inclusive approaches to ensure that the benefits are shared by all nations. By harnessing collective expertise, resources, and innovation, countries can navigate the evolving geopolitical landscape, address shared challenges, and shape a more prosperous and sustainable future for the global economy and trade.

5. Conclusion

The impact of changes in geopolitical patterns on the global economy and trade, with a focus on the investment and industrial chain sector, is significant and multifaceted. The restructuring of the global industrial chain, driven by evolving alliances, trade disputes, and technological advancements, has brought about both challenges and opportunities for countries and businesses operating within this sector. China's growing influence and geopolitical interference, disruptions in the high-tech industrial chain, and the implementation of the Friendshoring policy by the United States have all contributed to a shifting global landscape.

To navigate these changes and foster economic resilience, countries in the Asia-Pacific region can prioritize enhancing domestic innovation and research and development capabilities. By investing in education, promoting vocational training, and fostering collaboration between academia, research institutions, and industry, countries can cultivate a skilled workforce capable of driving innovation. Additionally, allocating resources to support research and development activities, establishing dedicated funds, and providing incentives for private sector investment in R&D can stimulate technological advancement and create a competitive edge in the global market.

Leading economies have an opportunity to work together and address global challenges such as climate change and public health crises. By increasing technology sharing in advanced manufacturing and renewable energy, promoting the upgrading of global carbon reduction industries, and jointly responding to public health emergencies, major economies can foster economic resilience, sustainable development, and effective crisis management worldwide. Sharing advanced manufacturing technologies and renewable energy advancements can accelerate industrial development, reduce the technology gap, and contribute to a more sustainable and resilient energy landscape. Moreover, collaborative efforts in public health can save lives, protect livelihoods, and facilitate a swift recovery of the global economy in times of crisis.

To facilitate these collaborative efforts, international frameworks and platforms can be established or strengthened, and inclusive approaches can be adopted to ensure that the benefits are shared by all nations. By harnessing collective expertise, resources, and innovation, countries can navigate the evolving geopolitical landscape, address shared challenges, and shape a more prosperous and sustainable future for the global economy and trade. The impact of changing geopolitical patterns on the global economy and trade necessitates proactive and coordinated responses. Through enhanced domestic innovation, research and development capabilities, and collaborative efforts in advanced manufacturing, renewable energy, and public health, countries can adapt to these changes, overcome challenges, and seize opportunities for sustainable growth and development in the investment and industrial chain sector.

Reference

[1] Roberts, A., Choer Moraes, H., & Ferguson, V. (2019). Toward a geoeconomic order in international trade and investment. *Journal of International Economic Law*, 22(4), 655-676.
[2] Eicke, L., & De Blasio, N. (2022). Green hydrogen value chains in the industrial sector—Geopolitical and market implications. *Energy Research & Social Science*, 93, 102847.
[3] Babic, M. (2023). State capital in a geoeconomic world: Mapping state-led foreign investment in the global political economy. *Review of International Political Economy*, 30(1), 201-228.
[4] Free, C., & Hecimovic, A. (2021). Global supply chains after COVID-19: the end of the road for neoliberal globalisation? *Accounting, Auditing & Accountability Journal*, 34(1), 58-84.
[5] Guo, Y., Li, Y., Liu, Y., & Zhang, H. (2023). The impact of geopolitical relations on the evolution of cobalt trade network from the perspective of industrial chain. *Resources Policy*, 85, 103778.
[6] Zhou, Q., He, Z., & Yang, Y. U. (2020). Energy geopolitics in Central Asia: China's involvement and responses. *Journal of Geographical Sciences*, 30, 1871-1895.
[7] Luo, Y., & Van Assche, A. (2023). Techno-geopolitical uncertainty and international business: Implications of the United States Chips and Science Act. *Journal of International Business Studies*.
[8] Volz, U., Campiglio, E., Espagne, E., Mercure, J. F., Oman, W., Pollitt, H., & Svartzman, R. (2021, November). Transboundary Climate-related Risks: Analysing the Impacts of a Decarbonisation of the Global Economy on International Trade, Finance, and Money. In 9th *IMF Statistical Forum*, 17–18 November.
[9] Ghauri, P., Oxelheim, L., & Randoy, T. (2023). The Changed Geopolitical Map: Implications for Business Policy in a Sustainable Finance Perspective. *IFN Working Paper*, No. 1465.
[10] Su, C. W., Khan, K., Umar, M., & Zhang, W. (2021). Does renewable energy redefine geopolitical risks? Energy Policy, 158, 112566.
[11] Liu, W., Li, X., Liu, C., Wang, M., & Liu, L. (2023). Resilience assessment of the cobalt supply chain in China under the impact of electric vehicles and geopolitical supply risks. Resources Policy, 80, 103183.
[12] Alfaro, L., & Chor, D. (2023). Global Supply Chains: The Looming "Great Reallocation" (No. w31661). National Bureau of Economic Research.
[13] Gong, H., Hassink, R., Foster, C., Hess, M., & Garretsen, H. (2022). Globalisation in reverse? Reconfiguring the geographies of value chains and production networks. Cambridge journal of regions, economy and society, 15(2), 165-181.
[14] Pegoraro, D., De Propris, L., & Chidlow, A. (2020). De-globalisation, value chains and reshoring. Industry, 4, 152-175.
[15] Aiyar, S., Malacrino, D., & Presbitero, A. (2023). Investing in Friends: The Role of Geopolitical Alignment in FDI Flows. CEPR Press Discussion Paper, 18434.
[16] Nakano, J. (2021). The Geopolitics of Critical Minerals Supply Chains. Center for Strategic and International Studies (CSIS). http://www.jstor.org/stable/resrep30033