


# Vol. IV

# Economics Quarterly

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# *Interviews on Artificial Intelligence*

Economics Quarterly conducted a series of interviews at the Peak and Sham Shui Po to find Hong Kongers' perceptions of the impact of artificial intelligence.

Click the link or scan the QR code to watch the interviews.

**Interview**
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https://youtu.be/NyOvKeYAKu0

# A Quick Update on the World Economy

COLIN NGAN

As we approach the end of the year, it's good to look back on how the economy has done so far and get an idea of its future direction. Here's a brief update on the recent world economic situation, and a rough projection on what the next few months will look like.

Let's start with the US. Despite some debate over whether the US would enter a recession this year, spurred on by a flurry of noisy data in the past months, the general consensus now is that though US GDP growth will have cooled from 2023, it will remain stable and will see solid growth and moderate inflation into year-end.

Positive surprises in economic data so far support this heavily, showing a solid and robust picture of growth. 254,000 new jobs were added in September, above the forecasted 140,000, with unemployment falling to 4.1%. GDP growth increased from 1.6% in quarter one to 3% in quarter two. This strength in growth is further underscored by robust levels of consumer spending, which recently came in at 2.8%.

Inflation, which has been elevated at extremely high levels (as high as 9.1% at its peak) ever since the period of rapid hyperinflation in 2022, has now essentially receded thanks to prolonged high interest rates. It now sits at a healthy level of 2.4%. Indeed, for the past two years, the US Federal Reserve has been in a tightening regime as it worked to bring inflation down from its extreme 2022 highs. Now that inflation has been largely contained, the Fed has shifted its focus from containing inflation to maintaining solid growth and employment. The Fed recently cut rates by 50 basis points in October, signalling the beginning of a period of monetary loosening, which is expected to keep growth and employment supported for the rest of the year.

The consensus forecast is for the US to end the year with around 2.3% GDP growth and 2.4% inflation, a slowdown from 2023, but not a recession.

The US stock market has seen a massive continued rally this year, driven by solid economic conditions, monetary loosening from the Fed, and excitement towards advancements in AI. Historically, the S&P 500 delivers around 11% returns per year on average. As of October 2024, the S&P has already drastically outperformed this average, delivering 23% returns year-to-date.

However, as strength in the stock market rally continues, expensive stock valuations are becoming increasingly difficult to justify, leaving some to speculate that the S&P has reached a bubble, where prices have become higher than can be supported by their fundamentals, and that the market will soon fall. Indeed, stock market performance has been extremely concentrated in a few companies, which leads to overall market performance being overly reliant on a few stocks, driving up volatility, and could therefore result in lower valuations for the market as a whole as investors demand a discount for higher risk.

Nonetheless, with a solid growth backdrop, solid corporate earnings and positive investor sentiment, the US stock market rally should have more legs to continue at least in the short run.

Elsewhere, in Europe, growth has lagged behind the US. EU growth came in at 0.7% and 0.8% respectively for the first two quarters of 2024, with inflation dropping from 2.8% at the beginning of the year to 1.7% currently. With this environment of stagnating growth and disinflation, the European Central Bank cut rates by 25 basis points 3 times respectively in June, September and October. More such cuts are expected well into next year as the ECB tries to mitigate disinflation and bring growth back up.

Finally, Japan is an economy worth noting. Over the past year, Japan has seen the start of a transition from deflation and stagnation back to sustained nominal GDP growth. This represents a historic recovery from a decades-long period of economic stagnation that started after the crash of 1989. Driving this recovery is wage growth, coupled with large-scale corporate governance reforms, which provide fuel for domestic demand and corporate earnings, accelerating inflation, which in turn drives wage growth, creating a virtuous cycle that ultimately brings the economy on a path of sustained inflation and growth. This process is currently in play, though it is a long-term transition and has seen some bumps, especially with the recent resignation of Prime Minister Kishida and the change in party regime, and doubts about Japan's economic policy path, but over the long run, this trend should come to bear fruit, bringing Japan back to the forefront of the world economy.

# Investing Concepts 4: Investing in Loss — Negative Gearing in Australia

TIM HE

## Understanding Negative Gearing

Over 1.1 million Australians or roughly 5% of Australia's entire population engage in the investing technique of negative gearing. That in itself should indicate the significance of this prominent investment concept in Australia.

Negative gearing is a counterintuitive investing strategy in which speculative investors purchase a negatively geared asset, an income generating asset that in reality has a greater cost of income generation than income generated. Although this may seem counterintuitive, with these investors seemingly sustaining a net loss, the investment's profitability is recouped via two methods.

Firstly, the investor's taxable income is deducted by an amount corresponding to the investment's net loss. In some countries, such as Japan, New Zealand, and especially Australia, this type of tax deduction is allowed. In others, such as the United States, Canada, and France, it is permitted, though with additional restrictions. For example, if an investor with a taxable income of $100,000 at 10% incurs a net loss of $20,000 on a property after expenditure on maintenance and collection of rent is considered, their taxable income is reduced to $80,000, thus saving them $2000 in deducted tax. Benefits of negative gearing are even more apparent for those with high incomes, largely due to the progressive structure of the tax system in most countries. Individuals with higher incomes subject to higher tax rates are able to deduct a greater net tax amount for every dollar deducted from their taxable income.

However, simply benefiting from tax deduction will not make the investment profitable. Investors have to then sell the property (usually) at a higher price than they had bought it for, recouping the initial investment and the losses via capital gains while at the same time benefiting from tax deductions.

## Impact of Negative Gearing on Economy

Of course, the social desirability of the existence of such a loophole has to be questioned. The Australian government reports losing a total of $5.7 billion in tax revenue, which raises the question of "Is this an efficient allocation of resources?"

Let's first consider the nature of the negative gearing financial maneuver. Negatively geared properties are usually homes and apartments for living. When individual investors purchase rental properties and homes, they instead have the intention of using them as a financial tool and not for their original intended purpose. Negative gearing incentivizes individuals to engage in this type of speculative acquisition of homes and apartments, creating unnecessary demand in the face of housing supply inelasticity, thus artificially inflating housing prices. The increased housing prices do not actually reflect the real need for housing as a home, but rather the combination of for-use buyers and speculative investors. As such, higher prices create unnecessary difficulties for for-use buyers to acquire an adequate living space, especially when supply is so dire. Take Hong Kong as an example. A significant portion of people living in a so-called "international city" live in subdivided flats, and the queue for obtaining public housing in Hong Kong stretches for more than 5 years. Assuming negative gearing is prevalent here, the inflated housing prices due to negative gearing cause individuals wishing to buy a home for personal use to be priced out of the market.

On the other hand, negative gearing decreases the income tax of relatively wealthier individuals. These two effects exacerbate the already worsening housing crises and wealth inequality prevalent in many parts of the world. Such inequality signifies the inefficiency of resource allocation, thus serving as a limitation to economic growth. Thus, by extrapolation, negative gearing does indeed negatively impact the economic growth of an economy.

However, one can argue that the issue of negative gearing stems from the private sector, and that public housing is already an adequate solution. Individuals that are seeking to perhaps purchase a property in the private sector should be at least relatively wealthy compared to those queueing up for public housing. This perspective is erroneous because there will inevitably be a domino effect in place that prices the least wealthy private sector participants out of the private market entirely. Relatively wealthy individuals affected will be forced to purchase the cheaper next best alternative, subsequently pushing slightly less wealthy individuals out and so on.

Another counterargument is that negatively geared properties are usually rented out to individuals, thus the use value of these properties is actually preserved. However, as investors view negatively geared properties as a speculative investment, they prioritize maintaining profitability rather than the financial health of their tenants. As such, they will frequently raise rental prices in order to increase profitability, leading to housing prices, even for the rental aspect, to artificially rise as a whole.

## Conclusion

Ultimately, although negative gearing certainly benefits the individual, it is an example of market distortion and undermines social equity detrimental to society as a whole. As such, it raises the question of whether the benefits to individual investors justify the broader societal costs, including increased housing unaffordability and wealth inequality.

# Peru's Lost Decade: a Case Study of the Debt Crisis in Latin America

SEBASTIAN ZHU

*The 1980s saw the foreign debt of Latin American countries skyrocket beyond a level of reparation. The geographical region in general borrowed astronomical sums from international creditors; and ultimately weren't able to support such debts with their economy. This article aims to examine one country that was particularly affected by this depression: Peru. Often referred to as the "Lost Decade", the period brought with it economic stagnation and widespread unemployment, similar to its more well-known cousin in Japan.*

## Development

In order to understand the $13.5 billion dollars of foreign debt that Peru had accumulated by 1983, one must look at the economic policies of preceding governments. From 1963-1968, Fernando Belaunde, the president of Peru, implemented the doctrine of "The Conquest of Peru by Peruvians". His administration attempted to build an export-led economy, liberalising Peru's major industries via optimised utilisation of the nation's natural resources. The Belaunde administration also looked to improve infrastructure via the establishment of hydroelectric projects. Despite these efforts however, the Standard Oil Controversy became the fuse of a military coup d'etat in 1968 which saw the removal of Fernando Belaunde from office and installation of General Juan Velasco Alvarado.

Under Alvarado's regime, a series of reforms took place in Peru including the de-privatization of many aspects of the economy. His government nationalised entire industries, consolidating them into a single government-run entity; this allowed for increased control over economic activities. Agrarian reforms including the redistribution of land amongst a greater population were also implemented. It is estimated that during ten years of the revolutionary government, over nine million hectares of land were expropriated; to an extent, this led to inefficiencies as smaller plots of the peasants had less productivity. Two direct results arose from these policies: the further accumulation of foreign debt, and the dissent of the bourgeoisie. The accumulation of debt resulted in the adoption of inflationary practices; a vicious cycle of economic instability ensued.

## Causes

Amidst a recession, Fernando Belaunde returned for a second presidency in 1980. He would continue much of the political agenda from his first term; the radical reforms of Alvarado were undone as privatisation of the economic sectors resulted from laissez-faire economic policies aimed at pleasing the elite ruling class. The effectiveness of his policies remains to be seen, as factors outside the control of the Belaunde administration swept over Peru and the rest of Latin America.

Much of Peru's economy is based on exports. When the value of its two largest exports, copper and silver, dropped by around 50% from 1980 to 1982, its economy took a big hit. When the world food prices decreased from 1983, Peru's agricultural sector producing potato and sugar was also hugely affected. At the same time of such an economic decline, Belaunde continued to pump money into infrastructure and natural disaster aid for storms such as the El Niño, both of which drastically increased government spending. In compensation, the government took on further foreign debt.

Another indirect factor of poor domestic conditions in Peru was the activity of the Shining Path, an extremist communist group that engaged in guerilla activities in the 1980s. The government initially saw them as little threat and refused to declare a state of emergency, which allowed the organisation to engage in attacks on infrastructure. This conflict allowed the Peruvian military to regain traction in Belaunde's civil government, and expended its limited funds to purchase equipment for the armed forces.

## Effects

The most visible effect of the Latin-American Debt Crisis in Peru was hyperinflation. In the 1980s much of Latin America saw high levels of inflation: as per a New York Times article from 1989, "Peru's Inflation Put at 1,722%". This was even after the 1985 establishment of a new currency named Peruvian inti, which failed its target of ameliorating the rampant inflation. The Peruvian currency lost trust, and the public relied on using US dollars instead. During these times, the new Garcia administration imposed tariffs on imported goods and in general practised protectionist policies, which led to a lack of natural resources: this in turn only increased the trade deficit further. By 1991 the per Capita GDP decreased to 1,908 from 2,643 in 1987. Unemployment reportedly reached over 6% during Garcia's term.

Economic stagnation continued but hyperinflation was only curbed during Fujimori's term as the president of Peru. Fujimori imposed harsh economic policies of raising consumer product prices and lowering interest rates: although living conditions temporarily worsened, these measures managed to turn Peru's economy into slow economic growth, as its per capita GDP finally reached the same rate in 1996 as in 1980.

While it is undeniable that wider factors within the world economy and within the sub-continent of Latin America had large influences in Peru's "Lost Decade", this article argues that the outlined contradicting economic policies irreversibly worsened the situation and delayed effective responses. Without regard to the possible success of the nationalisation of sectors or the long-term gains of improved infrastructure, these policies pushed the national debt of Peru beyond reparation. If interest rates were lowered and spending was cut prior to the second term of Belaunde, the years of economic stagnation and recovery would drastically decrease. Thus, from the aforementioned evidence, the conditions in Peru simply did not allow for liberalist policies until the 1990s: continued attempts from Alvarado and Belaunde failed due to over-optimistic estimates of worldwide economic conditions.

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# Power Shift: The Future of Sustainability Under Trump

Howard Deng

In the last decade, the world began moving towards achieving sustainability and using renewable sources of energy. However, Trump's recent landslide victory indicates the American people's disapproval of democratic agendas, amongst which entails the party's emphasis on sustainability. Trump's view on the sustainability sector is ambiguous, with the President-elect describing climate change as both "an expensive hoax" and subsequently as a subject that was "very important to me [Trump]." With control of the Senate, the House, and even the Supreme Court, Trump will almost certainly be able to implement his vision with little obstruction; thus, his impact on the market will undeniably be tremendous. This article discusses different dimensions of Trump's previous policies, plans for his next administration, and their potential consequences for the sustainability and green energy market.

Perhaps one of the largest factors of Trump's energy policy deals with deregulation, particularly with that of fossil fuel. Trump is a firm believer in having a small and efficient government, most notably creating the department of government efficiency (DOGE) which will be headed by Elon Musk and Vivek Ramaswamy, two distinct figures who, strangely, seem to have opposing views regarding green energy. However, this demonstrates Trump's contempt for what he views as wasteful and excessive government departments — including many programs established in order to reach sustainability goals – with his letter to Ramaswamy stating that DOGE will "dismantle Government Bureaucracy, slash excess regulations, cut wasteful expenditures, and restructure Federal Agencies."

However, it is also important to consider the role Musk will play in the Trump administration. Musk was a foremost supporter and patron of Trump's presidential campaign; this successful gamble would likely grant him significant influence on Trump's policy decisions. Musk, unlike most Republican policy makers, has consistently stated that he believes climate change is a serious problem, but whether his stance would suffice in swaying the White House is still unclear; nonetheless, Tesla stock prices surged during Trump's victory, indicating shareholder's confidence in Musk's impact on governmental decisions as he takes on a role in Trump's administration.

With that said, the rolling back of many of the environmental regulations from Trump's previous administration had been meant to increase domestic oil, coal, and natural gas production, which had negatively affected the renewable energy sector. Trump repeatedly stated in his campaign speeches and presidential debates that he will unleash the United State's "liquid gold" (oil and gas) to improve the economy, which would deal a detrimental blow to both the current existing oil industries and the green energy sector. The surge in the production of fossil fuels can delay the transition to renewable energy because such abundant and cheap fossil fuels could undercut the competitiveness of their clean-energy alternatives.

One of the turning points in Trump's previous presidency came when, in 2017, he withdrew the United States from the Paris Agreement. This was a sharp turn from his leadership in the global cooperation over climate change, and many wondered if America would remain committed to reducing carbon emissions. Furthermore, Trump replaced President Barack Obama's Clean Power Plan with his own, significantly deregulated "Affordable Clean Energy rule" while also attempting to freeze the fuel efficiency standards imposed on new vehicles. These policies reveal that Trump does not view sustainability as a priority, and his recent remarks suggest that he will likely prioritize the border crisis and the American economy over all else. Accordingly, many corporations within the green energy sector did not react well to Trump's victory, with Nextera Energy and Vestas stock prices falling significantly upon the news. With Trump's ever ambitious plans for his next administration, the renewable energy sector will likely experience decreased support and funding from the United States government.

In the end, as much as Trump's policies may have acted as a hindrance toward the development of sustainability and green energy, the new administration provides some hope for the sector, as Musk will play a key role in Trump's policy decisions. However, Trump's victory likely signifies an aberration from sustainability and the return to traditional energy sources which may be more economical, posing significant challenges for the renewable energy sector.

# The Global Semiconductors Arms Race

HELEN DAI

## The Significance of Semiconductors

At the heart of modern technology lies a critical component: the semiconductor, not only essential to our daily lives but also integral to the world economy. From autonomous driving cars and ChatGPT to the iPhones and Macbooks that we use every day, semiconductors are essential components that operate behind the scenes to enable technology advancement and productivity boosts. Without semiconductors, we would likely remain in a technological landscape reminiscent of the 1970s. Looking ahead, the evolution of generative AI may lead to the development of artificial general intelligence (AGI), potentially matching or surpassing human cognitive abilities. Such a transformation would completely impact our world. Major global tech giants and start-ups are racing towards that goal. Again, semiconductors — especially GPUs provided by Nvidia, AMD, etc - are the major enablers for that. It is forecasted that the semiconductor industry will grow to surpass $1 trillion by 2032, from $544 million in 2023.

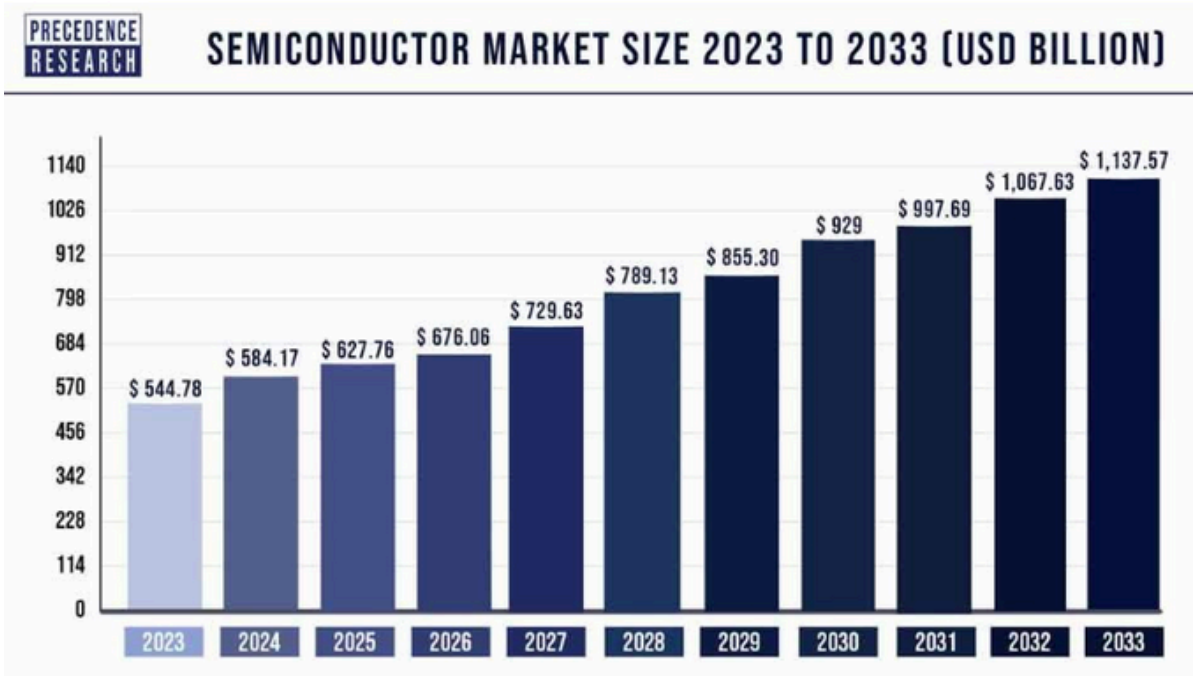


Fig. 1: Semiconductor market size 2023-2033 (Precedence Research)

## The Great Imbalance of Semiconductors

Despite the importance of semiconductors, its supply chain is not evenly distributed across the major economies in the world. The most prominent example is the US. The US is the biggest semiconductor country by design; it designs and sells 51% of global semiconductors, with major companies such as Intel, Nvidia, AMD, Qualcomm, etc. However, when it comes to manufacturing, the US heavily relies on other countries, especially Taiwan and South Korea, to manufacture its chips. On the other hand, mainland China consumes about 20% of the semiconductors in the world, as a manufacturing base for the global economy. However, it only designs 5% of semiconductors in

the world, suggesting a significant lack of capability to design high-end advanced semiconductors. Its manufacturing share is relatively high at 24%, but these are mostly low-end chips, and China doesn't have the capability to design and manufacture the most advanced chips.

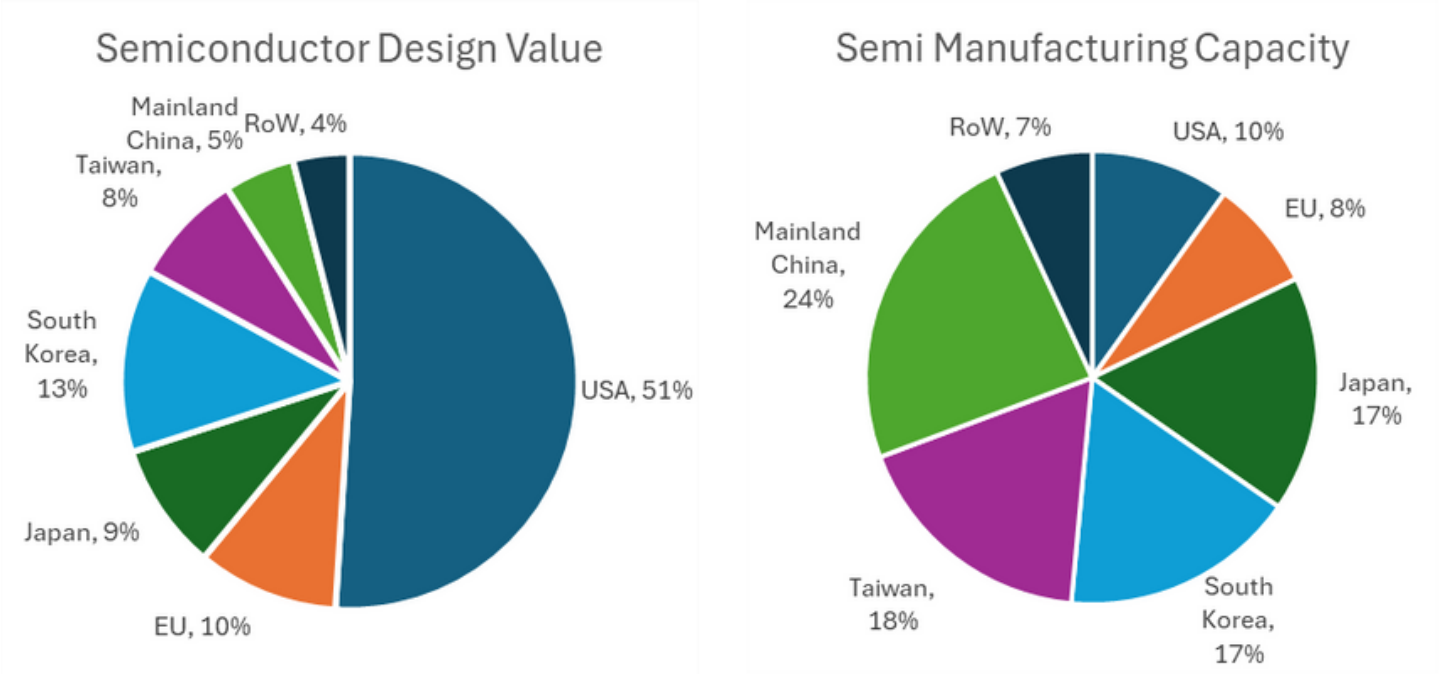


Fig. 2-3: Semiconductor Design Value and Semi-Manufacturing Capacity

This imbalance is the result of decades of shift of value from the US/Europe/Japan to Taiwan/Mainland China/South Korea. However, in recent years, this is starting to be recognized as a problem in recent years. With the escalating tension among certain countries, especially the US/China relationship, both countries are starting to recognize the importance of bridging the gap in the semiconductor supply chain.

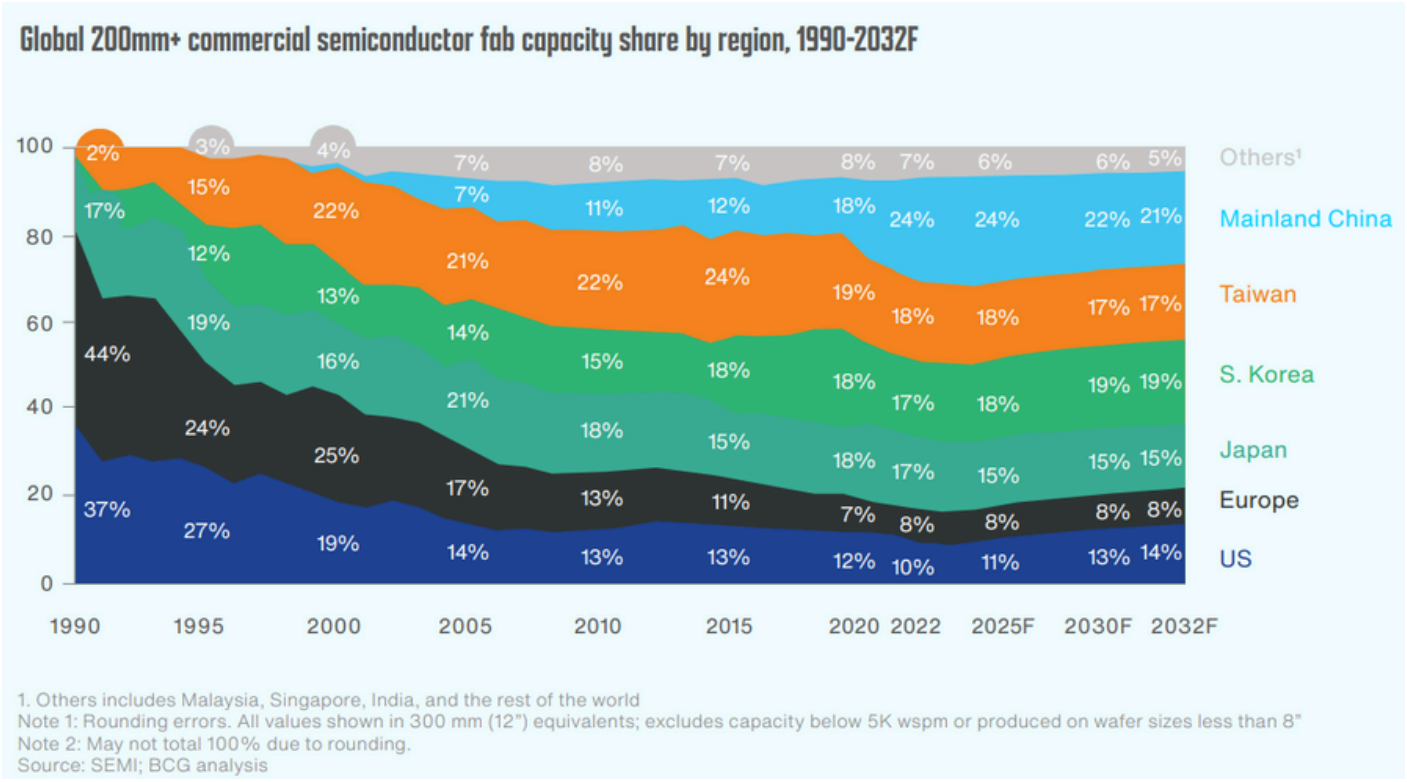


Fig. 4: Global 200mm+ commercial semiconductor fab capacity share by region, 1990-2032F (AET)

## The Restrictions on China and China's Expansions

The US started a few rounds of restrictions on China's semiconductor industry. On Oct 7, the US Department of Commerce implemented new export controls on advanced computing and semiconductors to China. On Oct 17, 2023, the Bureau of Industry and Security of the US Department of Commerce released three new rules tightening export restrictions on advanced computing semiconductors, semiconductor manufacturing equipment, and supercomputing items to China. It also coerced the Dutch and Japanese governments to release similar restrictions, though these are much milder than the US restrictions. With these restrictions, the purpose is to prevent China from obtaining the most powerful semiconductors and obtaining the equipment to build them.

China is not sitting still or accepting its fate in the restricted development of advanced semiconductors. In 2014, China recognized its lack of semiconductor capabilities and started 3 rounds of the China Integrated Circuit Industry Investment Fund to stimulate research and development. The total amount raised by the three funds amassed almost $100bn. The latest round, the phase 3 fund, was raised in May 2024 and targets to continue the semiconductor industry chain "neck" link investment, including large-scale manufacturing and equipment, materials, and other links, in addition to the HBM industry and other key areas of artificial intelligence semiconductor.

With the funding, China is spending more to purchase equipment globally to build up its semiconductor supply chain. China's semiconductor equipment spending has reached $36.6bn in 2023, doubling from 2020.

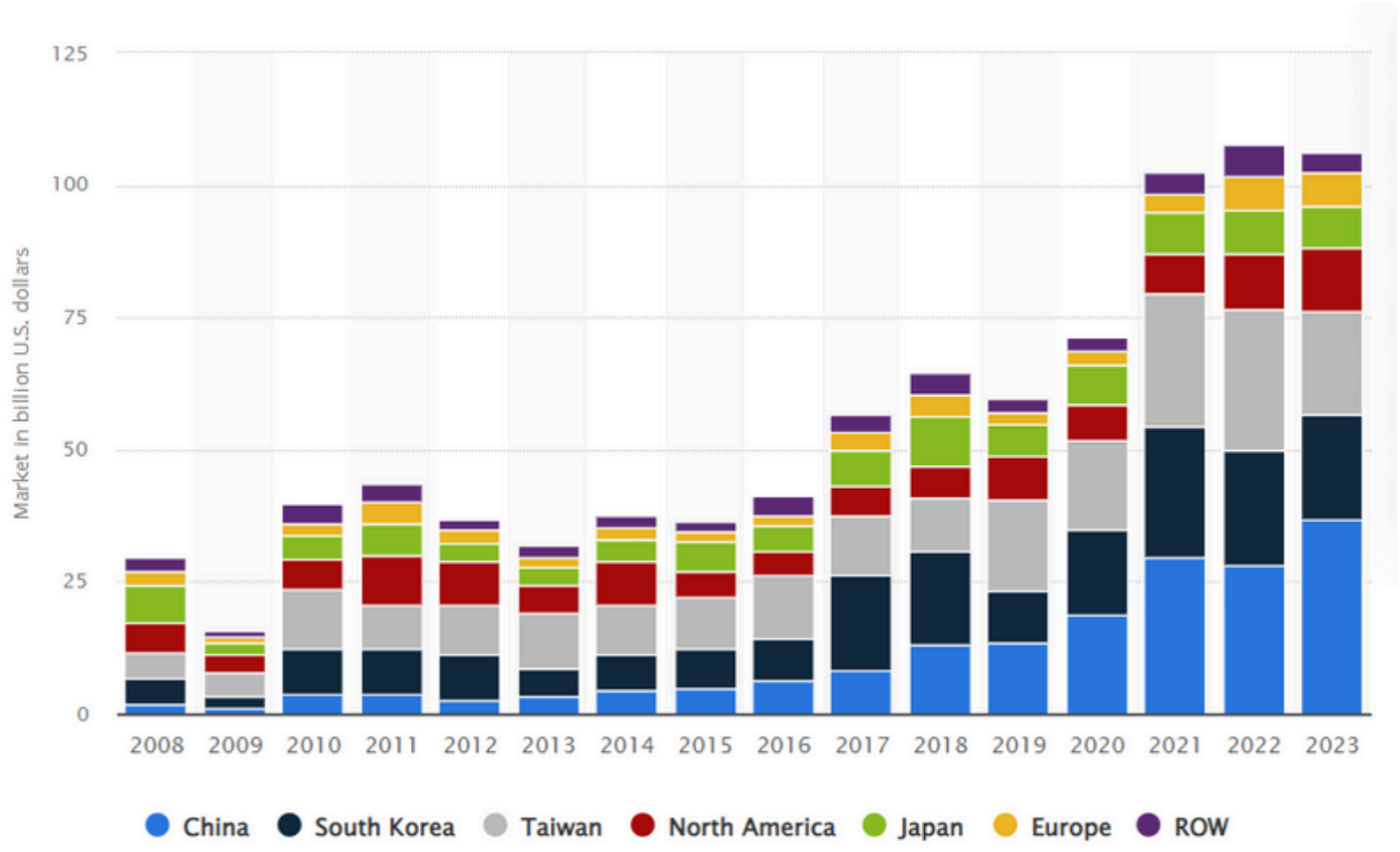


Fig. 5. Infineon's revenue worldwide from 2011 to 2023, by region (Statista)

## The Global Arms Race

In response, the US is also bolstering its semiconductor manufacturing capabilities. In 2022, the CHIPS Act was passed, aiming to spend $52.7 billion to boost the domestic research and manufacturing of semiconductors. It has rewarded the subsidy to Intel, TSMC, Samsung, etc. to build manufacturing fabs in the US.

Other governments are rapidly following. In September 2023, the EU launched the European Chips Act, investing €42 billion in the semiconductor supply chain. The Japanese, Taiwanese, and South Korean governments also launched their subsidy plans. All the government subsidies add up to a staggering amount of over $200 billion for building onshore semiconductor capabilities. With the rising importance of semiconductors and the intensifying geopolitical tension, a global semiconductor arms race is being engaged.

In conclusion, the global semiconductor arms race is driving significant investments and policy changes as different countries seek to secure their positions in the semiconductor supply chain and maintain their technological competitiveness.

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# From Oil to Agriculture: The Far-Reaching Effects of Supply Chain Disruptions

Athena Yip

*Supply chain networks are intricately connected throughout various regions of the world. Major disturbance in regions cause significant disruptions worldwide. Recently, the Middle East had been experiencing political tension as well as conflict, disrupting both import and export activities. At the heart of the system is the Red Sea, a vital passage linking the Indian Ocean and the Mediterranean Sae, a staggering 12% of global trade volume carrying oil and other critical commodities pass through daily. The recent instability had caused an impact in the region, therefore an impact on global industries.*

## The significance of Red Sea as a trade route

The Red Sea is a 1900-kilometer-long body of water, acting as an important trade corridor supporting a large portion of global trade, marking itself as a crucial root for transporting oil, grains, and other vital commodities worldwide. It is particularly important to East Africa, the Middle East and Europe.

In 2024, global supply chains only continue to face pressures as the security crisis continues in the Red Sea. Militant attacks are global shipping companies' main concern, therefore they avoid trade routes via the Suez Canal and reroute around the Cape of Good Hope. It is reported by the IMF Port Watch data that transit calls through the Suez Canal had dropped by almost 30% in the first week of January 2024 due to security risks. This impacts more than 10% of global trade, specifically Asian, Middle Eastern, and European countries heavily reliant on the trade route.

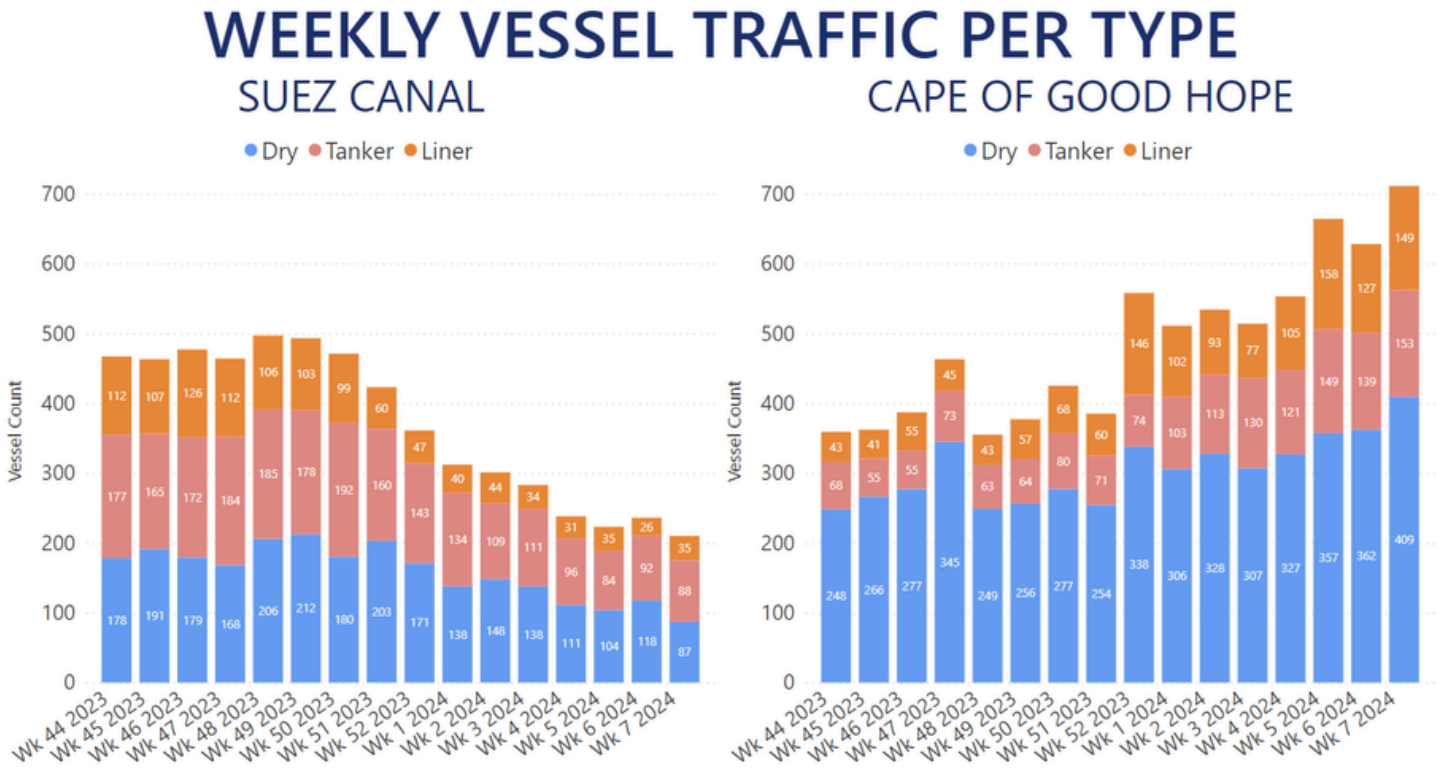


Figure 1. Graph showing weekly vessel traffic for Suez Canal & Cape of Good Hope

## Europe and engineering industries

European countries are believed to have experienced the heaviest impact as the Suez Canal serves as a crucial trade hub for common commodities. Industries such as electronics, chemicals, automotive, machinery, and more are vulnerable to trade disruption due to their heavy reliance on components from Asia in their supply chain. These disruptions could force the companies to decrease their production. Recently, Tesla had announced it would halt production in Berlin for two weeks. It is possible that these industries could experience a deficit of key components as well, adding to the inflationary pressure across Europe. Putting great pressure on millions of companies' profit margins at a time where slow economic growth and consumer income growth makes it challenging to increase cost.

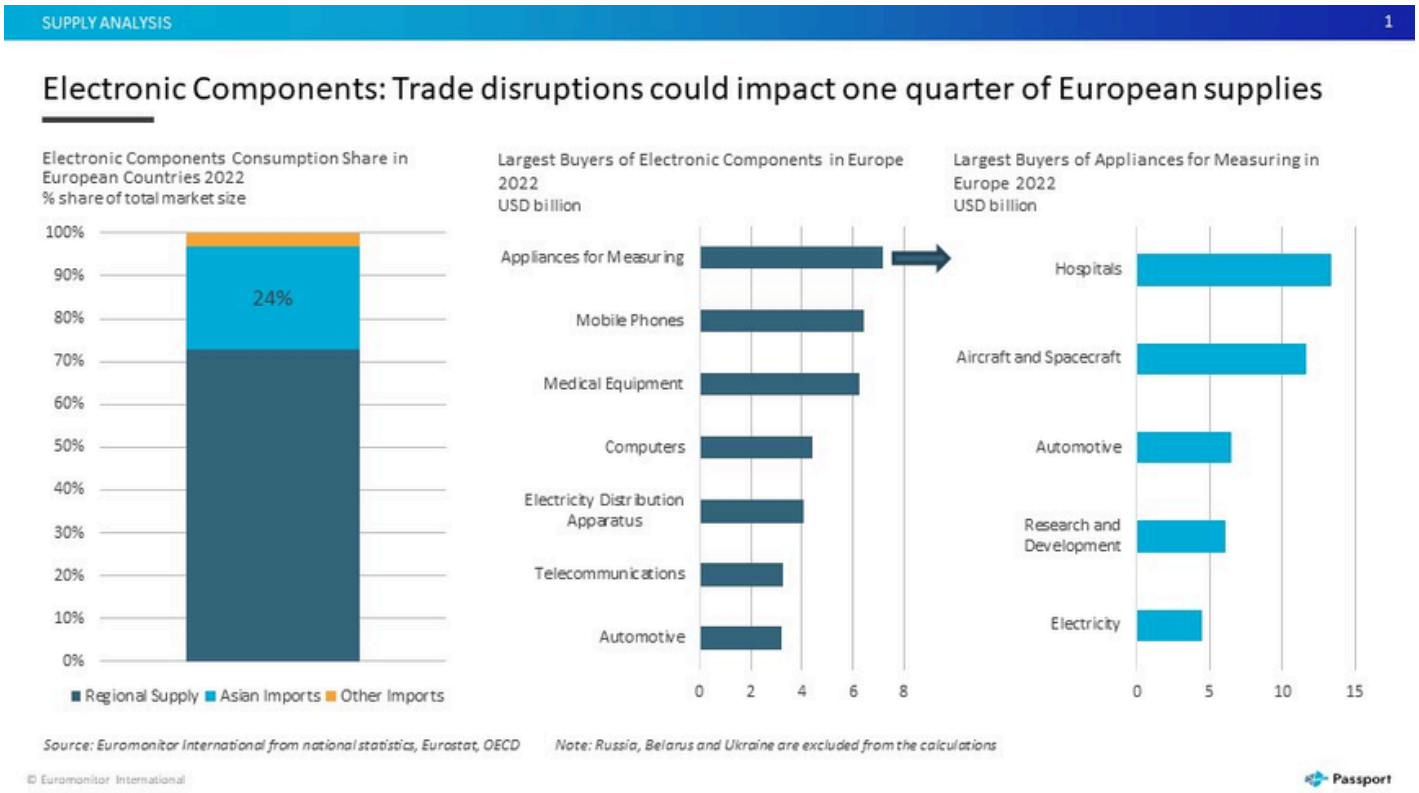


Figure 2. Charts showing the impact trade disruptions have on European countries

## The global agriculture sector and food security concerns

The point between the Indian Ocean and the Mediterranean Sea is a concern for not only the engineering industry but also the agriculture industry, as it serves as an important route for transporting grains such as wheat, corn, and rice from major producers like Russia and Ukraine to countries in Africa as well as the Middle East. Over 50 million tonnes of these products are transited over the region every year. For countries dependent on imported grains, these disruptions will only exacerbate existing hunger problems in the countries.

Additionally, another concern for the agriculture industry arises from the tendency for prices of fertilizers to increase as price of natural gas and coal increases. The production of nitrogen fertilizer, one of the most commonly used fertilizers worldwide relies on the use of natural gas. The price increase will likely lead to a decrease in harvests, causing a predicted scarcity of fertilizers, leading to a reduction in food volumes on the global market. Further worsening the issue of world hunger.

In 2023, it was reported by the UN FAO that the number of people who face food insecurity had increased from 624 million in 2017 to 900 million in 2022 globally. The number is expected to increase. Because of ongoing political tensions worldwide, the problem of food shortages had clearly worsened, though is further amplified by the Red Sea crisis. This uncertainty decreases investment in the agriculture industry and discourages farmers worldwide from increasing production. WFP has spoken up about their concerns about food shortage in vulnerable regions, urging all countries involved in the Middle East conflict to find a peaceful solution to ensure the flow of essential food suppliers.

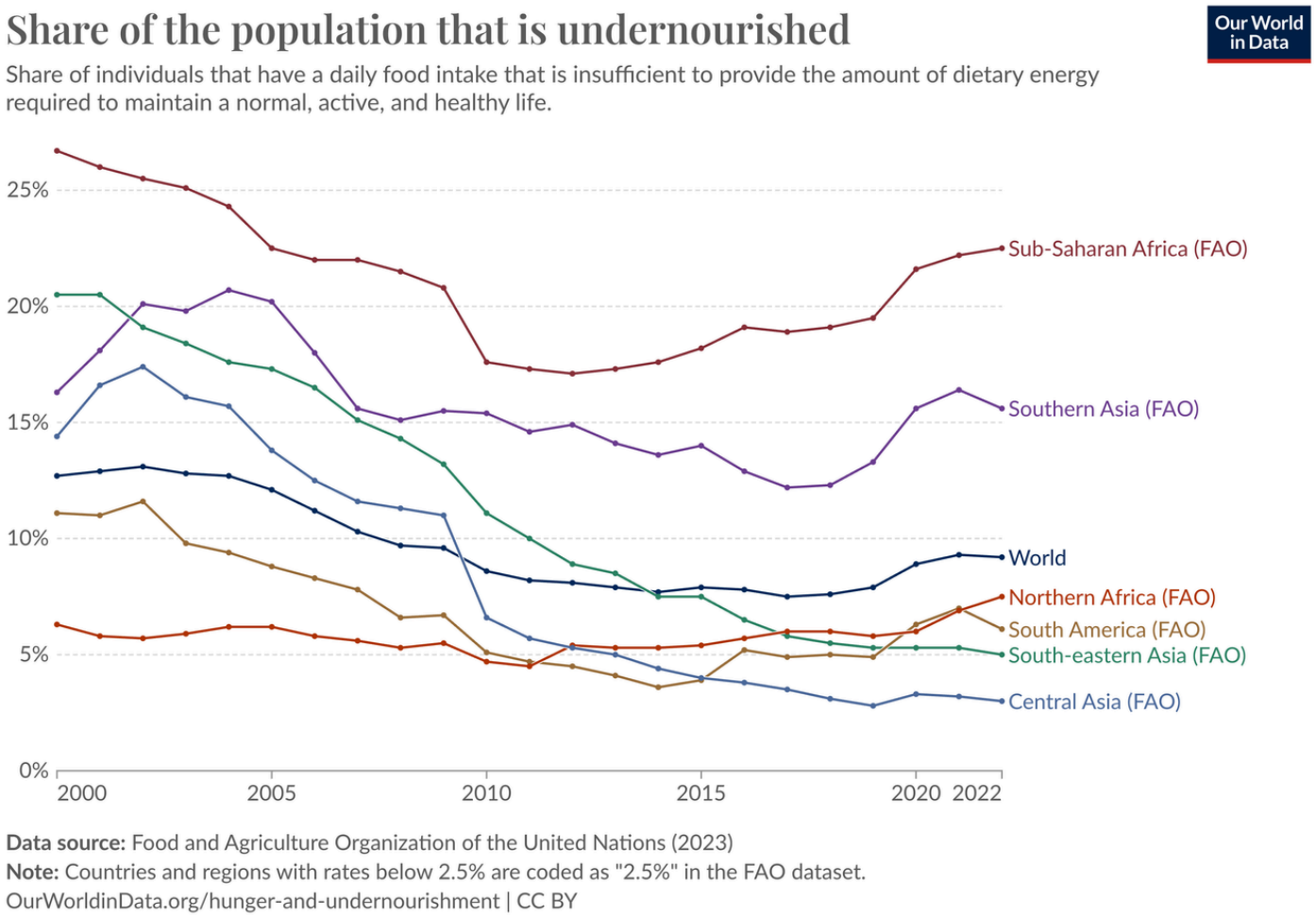


Figure 3. Graph showing shares of the population that is undernourished

## The growing price and demand of oil

The wars and conflicts in the Middle East had directly posed challenges to the global oil supply chains, given the region's pivotal role in global oil production. They account for a third of the world's oils with major producers like Saudi Arabia and Iran. These products are exported through the Straits of Hormuz, a passage connecting the Persian Gulf to the Arabian Sea.

The Strait of Hormuz is a narrow passage connecting the Persian Gulf to the Arabian Sea, and it serves as one of the most critical choke points for the global oil supply. Major oil producers like Saudi Arabia, Iran, Iraq, and the United Arab Emirates rely heavily on this route to export their oil to international markets around the world. The waterway is now vulnerable to blockades or military conflicts, heightening the risk of disruptions in the supply chain.

In recent years, there have been several instances of attacks targeting oil facilities in the region, severely limiting the flow of oil through the waterway resulting in shortages in the global market. The lack of alternative routes makes the Strait of Hormuz irreplaceable, unlike the Red Sea. Countries heavily dependent on Middle Eastern oil (including China, Japan, and India) would face immediate energy shortages leading to economic slowdown and increased geopolitical tensions.

According to the U.S. Energy Information Administration (EIA), the cost of extracting crude oil has increased significantly due to higher labor and transportation costs caused by increased tension in the Middle East over the past five years. Steady increase is predicted over the coming years. EIA expects oil price to average $85 per barrel during the second half of 2024. As the price increases, the global demand for oil increases. The International Energy Agency estimates an increase of 1.4 million barrels per day in 2024. Production cost is expected to increase for businesses reliant on oil from the Middle East. Additionally, the cost of transportation, manufacturing, and logistics is expected to increase, causing a price increase that may force countries to increase inflation and face reduced economic growth.

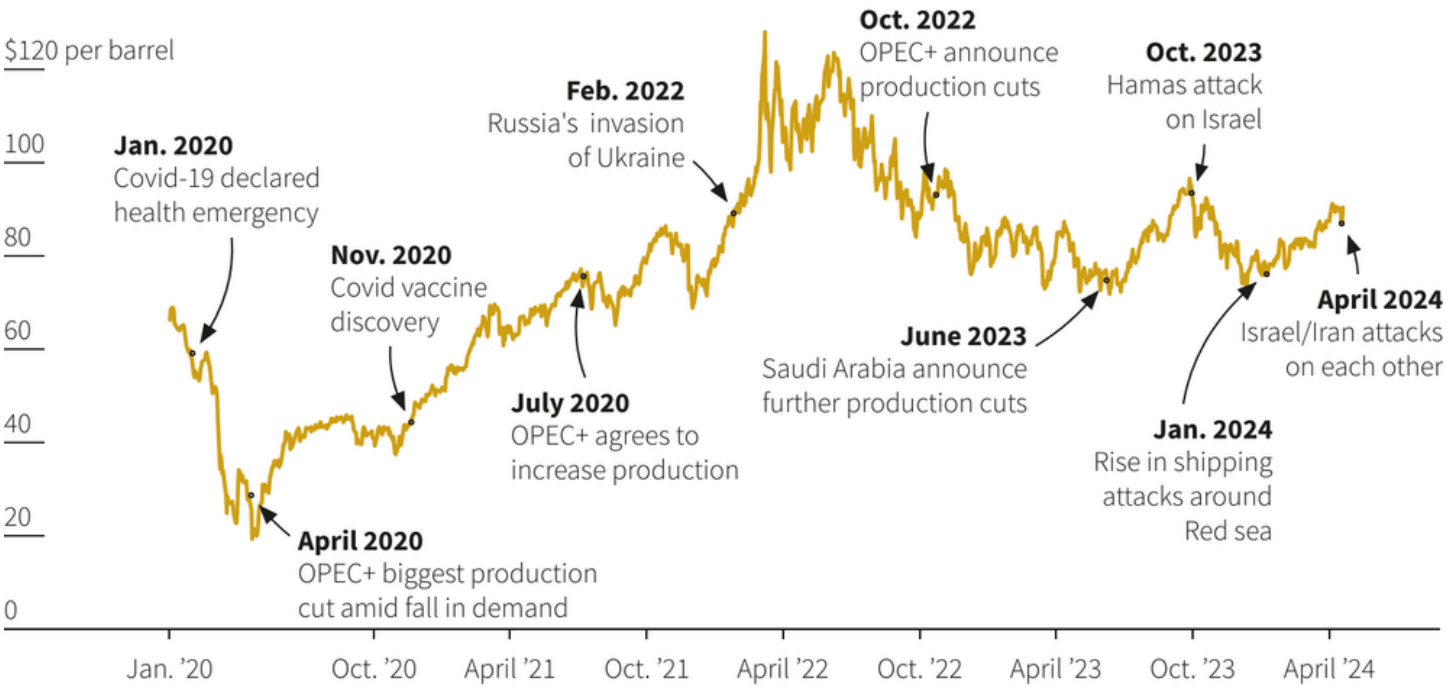


Figure 4. Graph showing crude oil price changes since 2020

## Conclusion

The ongoing conflict and war in the Middle East had affected two major trade passages, the Suez Canal and the Cape of Good Hope, affecting global industries including the engineering industry, oil industry, and agriculture industry. The risk of attacks in the area had prompted companies to switch routes, causing a rise in production, transportation, and logistic cost of goods, pressuring a change in profit margin. The significant impact has led to a decrease in economic growth in several countries worldwide, pushing countries towards higher inflation rates, with some facing a financial crisis. The effects of conflicts in the Middle East are undeniable proving the interdependence of global industries and countries.

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# The Economic Impacts of Climate Change on the Global Economy

Kaleb Lau

***Climate change poses significant challenges to the global economy, with implications that will influence economic stability and affect agriculture, energy production, forestry, fisheries, and tourism in the future.***

## Agriculture

Agriculture is particularly vulnerable to the effects of climate change. Changes in temperature and the increasing frequency of extreme weather events such as storms and floods can all lead to largely diminished amounts of crop harvests, threatening food security on a global scale. Staple crops like rice and wheat are especially at risk, as they are sensitive to climate variations. or flooding, both detrimental to crop production.

The consequences of agricultural disruptions extend beyond farmers. In many impoverished countries, a diminished amount of crops can lead to increased food prices, making staple foods unaffordable for many families. This cycle of poverty and food insecurity can lead to social unrest. Furthermore, as agricultural productivity declines, countries may become more reliant on imported food, which can strain economies and lead to trade imbalances.

## Property Damage and Loss

Climate change is known to increase the frequency of extreme weather events and rising sea levels, increasing the frequency of natural disasters such as storms, bushfires, floods, and erosion. These impacts can cause damages to properties, lowering their values. According to AdaptNSW, it is projected that by 2030, the Australian property market could see a reduction in value of approximately $571 billion due to climate change and extreme weather.

Rising sea levels and increased water temperatures can also damage crucial infrastructure, such as power plants and pipelines. The disaster that occurred on March 11, 2011, at the Fukushima Daiichi Nuclear Power Plant serves as an example; the incident cost billions in damages and significantly impacted local industries and energy production as a whole.

## Forestry

Forestry is heavily impacted by climate change, facing challenges that threaten entire ecosystems. Rising temperatures, altered precipitation patterns, and increased bushfires can disrupt forest ecosystems, leading to shifts in species composition and a reduction in timber production. This disruption can affect the forest products market, raising the prices of common everyday products such as paper and wood.

## Fisheries

Climate change poses significant threats to global fisheries, which are vital for food security and economic stability in many coastal communities. Rising ocean temperatures, and changing salinity levels affect fish populations and their habitats. Warmer waters can lead to the migration of fish species toward cooler areas, disrupting fishing grounds and impacting the fishermen who depend on stable fish stocks.

On top of that, altered breeding patterns can lead to a decline in fish populations, threatening the sustainability of fisheries. The economic impacts are profound, as the fishing industry supports millions of jobs worldwide and contributes billions of dollars to the global economy. As fish stocks diminish, increased competition for remaining resources can drive prices up, making seafood less accessible, particularly for low-income populations.

## Water Resources

Water resources are increasingly more valuable due to climate change, affecting both the quantity and quality of freshwater supplies. In agriculture, insufficient water supply can lead to crop failures, creating food insecurity and driving up prices. In urban areas, increased demand for water, can lead to conflicts over resources. The economic costs associated with water scarcity are significant, including expenses related to water treatment, infrastructure development, and potential health problems stemming from inadequate water access.

## Global Trade

Climate change has far-reaching implications for global trade, as it can disrupt supply chains and alter trade patterns. Extreme weather events can damage transportation infrastructure, such as ports and roads, leading to delays and increased costs for shipping goods. For instance, hurricanes and floods can halt operations at major ports, causing ripple effects throughout global supply chains.

Moreover, as countries grapple with the impacts of climate change, they may implement trade barriers or tariffs on goods perceived to have a high carbon footprint. This could lead to increased costs for consumers and businesses, as well as potential trade disputes between nations. The economic implications of these changes could be profound, affecting everything from commodity prices to international relations.

## Conclusion

The effects of climate change on the global economy are profound and multifaceted, impacting agriculture, property values, forestry, fisheries, water resources, and global trade. As the world grapples with these challenges, we must adopt comprehensive solutions to mitigate the impacts of climate change and build a more resilient global economy. By investing in sustainable practices and fostering international cooperation, we can work towards a future that prioritizes both economic stability and environmental sustainability.

# The Tax Advantages of Hong Kong

Joseph Wu

Hong Kong is one of the most expensive cities to live in the world, with a rushed life and heavy light pollution, not to mention air pollution as well. With all these negative examples, Hong Kong may seem like an unfeasible choice to call home. But living in Hong Kong has its upsides too, like having a low crime rate and having one in 13 people being a millionaire. But its biggest advantage is having a low tax rate.

## What is tax?

Tax is a certain amount of money that, in most countries and cities, citizens have to pay in order to have enough money for public facilities like swimming pools, sports centers, and schools. The government and the rulers of the country also have to pay tax, in order to support the country. Some countries have to pay more tax than other countries, and while Hong Kong is a city, its tax rate is relatively low.

## What taxes does Hong Kong have?

Hong Kong is home to three types of tax, so you do not have to worry about your money when it comes to taxes. The three types of tax are namely: profits tax, salaries tax, and property tax. Some of the taxes that Hong Kong does not have are sales tax, withholding tax, capital gains tax, tax on dividends, and estate tax (InvestHK).

## How much tax do Hong Kongers need to pay?

Hong Kong is home to three types of tax, so you do not have to worry about your money when it comes to taxes. The three types of tax are namely: profits tax, salaries tax, and property tax. Some of the taxes that Hong Kong does not have are sales tax, withholding tax, capital gains tax, tax on dividends, and estate tax (InvestHK).

## Why is Hong Kong's tax so low, and what is the history of Hong Kong's tax?

Hong Kong's tax is one of the lowest taxes in the world, and this is partly because the government has large fiscal reserves equivalent to more than 12 years of expenditure. Since the government already has that much money, there is no need for a high tax rate. Hong Kong used to be a tax-free port, but when WWII started, taxes were started as a fund for the soldiers fighting. After the war, the Inland Revenue Ordinance was set up to make the temporary tax a more permanent one. Higher taxes were planned for after the war, but two review committees in 1954 and 1967 declined to reform the system. A 2002 review committee proposed a goods and services tax, but widespread opposition to the idea led to the government revoking the plan in 2006, and that was how Hong Kong's tax came to be, for better or for worse.

## Conclusion

Ultimately, Hong Kong's tax system has some distinct advantages.

# Bitcoin vs. Ethereum

KONNOR WAN

("Bitcoin vs Ethereum - a Comparative Analysis between BTC and ETH")

*Cryptocurrencies are constantly on the airwaves, every week new coins are minted and every week you hear about scams. But what about the ones that aren't scams, what about the ones that are well-established cryptocurrencies? The two that would likely come to mind would be Bitcoin and Ethereum. Throughout this piece, I will first go into a brief explanation of each cryptocurrency. Then I will explain each of their purposes, before finally going into their similarities and differences.*

## Overview of Bitcoin

Created in 2009 as the brainchild of the cryptic Satoshi Nakamoto, Bitcoin is a digital currency, better known as a cryptocurrency (a virtual currency without any physical bills or coins). It is designed to act as a form of payment decentralised from any state, person, or entity. Thus, any third parties, whether banks or any other financial institution, are removed from all financial transactions (Mansa). Whilst initially seen as a novelty and a fad, it has established itself as one of the premier decentralized cryptocurrencies despite it being recognised and used by a scant few companies. Bitcoin has found a steady demand in the modern financial system despite the controversy and has found itself at the head of a cryptocurrency revolution, inspiring countless other cryptocurrencies. Whilst one could find hours worth of content explaining the complexities of Bitcoin, at its core it is quite a simple concept. If you have a bitcoin, you can spend it just like any other form of currency (if they accept bitcoins). To create this cryptocurrency disconnected from the world's banking systems it utilises a digitally interconnected database of information known as blockchains that is held on multiple systems across the network, rather than one central hub. The word blockchain is thrown around quite often in the crypto space, but it can be explained simplistically (Hayes). Essentially a blockchain as its name suggests is a string of blocks, strung together in chronological order, used to transfer cryptocurrencies together between users. Removing the need for a central entity to oversee the cryptocurrency.

## Overview of Ethereum

Launched in 2015, Ethereum is at the time of writing (October 2024) the second largest cryptocurrency on the market, only trailing behind Bitcoin. Created more than half a decade after Bitcoin, Ethereum is much more than simply a currency. Unlike Bitcoin, Ethereum possesses the ability for developers to code and utilise their decentralized applications, commonly referred to as dApps, alongside its regular function of being an area for financial transactions to flow (Anderson). At its core, Ethereum runs on Ether (shortened to ETH), which is the coin that is used to pay for transactions, savings, and investments. For a user to use Ethereum, they need to possess Ether to run applications on their network. All actions on Ethereum require a fee for action, these are known as gas payments. Whether this is sending transactions or using smart contracts, gas payments are needed, these payments need to be paid out with Ether.

| | Ethereum | Bitcoin |
|---|---|---|
| Original author(s) | Vitalik Buterin, Gavin Wood | Satoshi Nakamoto |
| Launched | July 2015 | January 2009 |
| Supply | Infinite supply | 21 million |
| Consensus Algorithm | Proof of Stake | Proof of Work |
| Purpose | Programmatic contracts and applications via a global virtual machine | Store of value / medium of exchange |
| Block Time | 15 seconds | 10 minutes |
| Transactions Per Second | 30 TPS | 7 TPS |

Atomic Wallet

Comparison — ("Ethereum vs Bitcoin")

## Transaction speed

Now how do these two premier cryptocurrencies stack up with one another? For starters let's have a look at the most important aspect of any cryptocurrency or any currency in general for that matter, that being transaction speed. On average a Bitcoin takes 10 minutes to file a transaction and for that transaction to then be confirmed, obviously the speed of connection is predicated on the size of the fee and whether or not the network is congested. On the other hand, Ethereum takes approximately 12-15 seconds to file a transaction and then for that transaction to be confirmed. In comparison to Bitcoin, it allows for much faster transaction speeds (Chainspect).

## Scalability

The rate at which a cryptocurrency asses transactions is in transactions per second (TPS). For Bitcoin the TPS is around 7, thus this can on occasion lead to delays, which are most prevalent during periods of high demand. On the other hand, Ethereum has a TPS of approximately 20. Whilst comparatively much higher, at periods of peak demand, it can still lead to serious delays, as well as leading to users of Ethereum having to pay much higher gas payment fees with their ETH ("Ethereum vs Bitcoin").

## Uses

On one hand, Bitcoin was created as a means for one-on-one financial transactions without third-party oversight. Over time, however, as a coin itself, it is being seen as a commodity in itself, being traded on markets across the globe, with some even calling it 21st-century gold. ("Bitcoin Could Potentially Become the 21st Century Gold") Ethereum on the other hand was designed as more of a jack of all trades, not only a digital currency but also for digital applications (dApps).

## Conclusion

In conclusion, both cryptocurrencies have their drawbacks and benefits, and whilst this piece seeks to identify and contrast differences. At its core, these two fill different niches and different roles.

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# The Economic Rise of Singapore

AMY LIU, JUDY BAI

In 1819, when the British East India Company led by Stamford Raffles negotiated a treaty that would allow the British to locate a trading port on the island, ultimately leading to the establishment of the British colony of Singapore in 1867. This set in motion the economic rise of Singapore, transforming Singapore from a small fishing village to a thriving trading hub.

First off, Singapore's location has numerous benefits, as it is located near the straits of Malacca and Singapore. The Straits of Malacca and Singapore are a choke point for major shipping routes and international trade, connecting the Indian Ocean and the Pacific Ocean, and linking Europe and Africa to Asia. This strategic point also gives it the perfect opportunity to become a free trade port.

Secondly, when the British arrived they established a free trade economy, introducing modern financial and economic systems, and promoting Singapore's early growth. After its independence, Singapore has continued to build and strengthen multiple free-trade agreements, allowing nations and companies to reduce barriers to imports, including taxes, duties, and fees. This in turn allows more countries to trade and pushes commerce. Double Tax Treaties are also common, including the India-Singapore DTAA and the Malaysia-Singapore DTAA, allowing smooth trade with nearly every country in the world, attracting significant foreign direct investment (FDI) from multinational companies seeking a stable environment for business operations. This influx of FDI contributes to job creation, knowledge transfer, and new technology, stimulating economic activity and growth.

Singapore has open policies for immigration and welcoming global talents. Throughout Singapore's history, immigration policy has been used as a deliberate tool to grow and augment the resident labour force to promote economic growth by relieving labour force constraints across all parts of the skill distribution. The entrance for migrants to Singapore is varied, but the migrant should either have an Employment Pass (EP), A skilled Pass (S-Pass), a Work Pass (WP), or a Domestic Worker Pass (FDW). It is designed to attract professionals around the world, like managers and executives which can greatly fuel economic growth and innovation. It also welcomes skilled entrepreneurs, which helps Singapore enhance its competitive edge in various industries, including economy, engineering, and healthcare. Singapore also welcomes and

actively encourages foreign corporations and startups to establish business in the country through initiatives like the entrepreneur pass (EntrePass). A government-sponsored employment pass in Singapore that brings in skilled foreign workers to help establish and grow their business in the country. By welcoming global talent, Singapore can address labour shortages in key sectors, improving the quality of services and infrastructure. Also, this diversity allows for a variety of perspectives and ideas, leading to a more effective problem-solving and business environment. Open immigration policies can also promote cultural exchange, enriching Singapore's social fabric.

Finally, Singapore's education system also emphasizes the development of a skilled and knowledgeable workforce well-equipped for the evolving job market. A well-educated workforce enhances productivity and innovation contributing to economic competitiveness. This means that because workers are well educated, they keep up with the times and so do initiatives and products, offering new ideas and marketing strategies suited for the present day. Education also nurtures a culture of innovation and problem-solving at a young age. By equipping young people with critical thinking, educated individuals are more likely to engage in entrepreneurial ventures, start innovative businesses, and drive economic growth through new ideas and solutions. In addition, there are also government-funded programs that help and support young companies such as Startup SG, an initiative that provides funds and mentorship programs. Some of these programs include Startup SG Equity, a program that matches investment from 70% up to 1:1, and many others that encourage technological and innovation growth that eventually benefit the economy too.

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# Global Chip Shortage

EASON HUANG

Chips are ubiquitous in our daily lives; without them, computers would falter and your favorite games would experience crashes due to insufficient processing power. With the new release of Apple's M4 chip featured on the new iPad Pro, worldwide customers can finally have a try of an astonishing experience on the most powerful iPad to date. However, right before a few years ago, everything was much different...

Between 2020 to 2023, the time when the COVID-19 broke out, there was a global chip shortage that affected more than 169 industries worldwide, known as 2020—2023 global chip shortage. To understand this situation better, we would need to understand what were the causes of chip shortage, as well as the consequences of this shortage.

First and foremost, the chip shortage is mainly attributed to the sluggish economy and global manufacturing due to the effect of the COVID-19 pandemic being the fundamental reason for deteriorating shortages. From early 2020, the supply chains and logistics for electronic devices soared owing to some countries' growing demands for online meetings and the stay-at-home economy. Along with a 13% increase in global need for PCs, this growing demand impacted the availability of key chips necessary for the manufacturing of a broad range of electronics. However, some key chip manufacturers, such as Intel and TSMC (Taiwan Semiconductor Manufacturing Company), have faced serious constrained supply problems. This phenomenon is a result of a combination of different events with the snowball effect of the COVID-19 pandemic.

Taking the TSMC as an example, it faced large-scale short supply because of demand fluctuation caused by COVID-19 and extreme weather. Firstly, in the mid-term of 2021, Taiwan's pandemic outbreak came into the worst stage since 2020, leading to temporary suspensions of operation and shortages of employees. For example, due to sick migrant workers, at least five semiconductor manufacturers southwest of Taipei were forced to temporarily halt operations. As has been mentioned by James Lee, the director of the Taipei Cultural and Economic Office, "We hope the international community can help release vaccines as soon as possible to help control the outbreak." From this line, we can see that the experts expressed the concern that a severe outbreak could jeopardize Taiwan's crucial role in the global semiconductor supply chain.

More than that, severe climate disasters should also be blamed for limited supply. According to TSMC, it uses about 156,000 tonnes of water to produce the chips, which are equivalent to about 60 standard swimming pools. Using this considerable amount of water, TSMC could then "clean the surface again and again after every process is finished," said Jefferey Chiu, an electrical engineer at National Taiwan University. However, in response to the drought, the Taiwanese government had already restricted the water supply across the whole island. Thus, TSMC couldn't manufacture as many chips as they would expect due to the water shortage.

The consequence of global chip shortage is impactful. The automotive industry is one of the hardest hit. Its production is halted due to a lack of semiconductor supplies. It had notably caused an increase in both new and used vehicle prices, and this contributed to a significant portion of the inflation in the following years. For instance, the shortage is so severe that it is estimated to result in a loss of $61 billion in sales for car manufacturers in 2021. Other than the automotive industry, the impacts are also notable at the macroeconomic level. For instance, the semiconductor industry itself, which is valued at approximately $553 billion in 2021, is expected to grow significantly. However, according to the research, the constraints imposed by the shortage could hinder that growth trajectory.

In all, as the pandemic recedes, the global chip industry has begun to recover and witness significant growth, with semiconductor companies ramping up production to meet their demand.

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# Dividend Stocks

*What is the best portfolio choice for diversification and passive income?*

BRUCE CHAN

Dividends have sparked a buzz for people to invest in high dividend yield stocks to have exponential growth. However, high dividend yield stocks are often regarded as unstable, as the companies have to spend their free cash flow to distribute to investors, thus losing their market power to expand their business and ultimately slowing down their growth. To understand the situation better, we will need to understand what dividend yield means to us as investors, look further into 2 specific stocks that intrigued us, and acknowledge other stocks that have great potential.

First and foremost, the dividend yield is the amount of money a company pays shareholders for owning a share of its stock divided by its current stock price. Usually, mature companies are the most likely to pay dividends, since their market structure is stable enough to ensure stable payouts to investors. Most likely, companies in the utility and consumer staple industries often have relatively higher dividend yields.

Delving deeper into the stock market, companies like AT&T (NYSE: T) and Verizon (NYSE: VZ) are often viewed as ideal choices for income-focused investors. To compare these two telecom giants, we have to focus on their long-term financial health, growth potential, and overall investment attractiveness:

As of October 2024, Verizon boasts a higher dividend yield of approximately 6.02%, while AT&T offers a yield of around 5%. Although this difference might not seem insignificant and marginal, to maximize profit and income, every basis point counts. Indeed, Verizon has a track record of increasing its dividend annually, marking its 18th consecutive increase in 2024, therefore being a more attractive dividend stock due to its appealing growth. On the other hand, AT&T cut a dividend yield in 2022, of nearly 50%, which raised suspicion about its market structure growth, and business sustainability.

To add on, the company must generate sufficient cash flow to cover its dividend payments. As of today, Verizon's leverage ratio stands at around 2.5 in comparison to AT&T's 2.9 ratio. A lower leverage ratio means that companies have less debt relative to earnings, reinsuring less chances of economic downturns. Furthermore, Verizon's free cash flow is $18 billion for the year, enough to cover its dividend obligations in comparison to AT&T's $16 billion. Moreover, AT&T's choice of selling its stake in DirecTV for 7.6 billion to reduce its debt faces significant financial challenges, since the company has a net debt of $126.9 billion.

With these arguments in mind, Verizon has focused on expanding its s 5G network and enhancing its wireless service, anticipating a steady earnings growth of approximately 3% annually over the next few years with increasing demand. AT&T, on the other hand, is in a transitional phase. Its paramount debt has proved hard to overcome, as the company shifts its aims to concentrate on its core telecommunications business. While this pivot could lead to improved financial stability, AT&T's path to growth is less certain. Driving economic growth from leveraging its 5G network is to be determined. Therefore, analysts remain skeptical about AT&T's ability to return to a growth trajectory, given its historical struggles with debt management.

In the end, both stocks can be a valuable asset to your portfolio to increase your overall passive income. Verizon's higher dividend yield, healthier financial profile, and consistent growth might make it a compelling choice. While AT&T has made strides in reducing its debt and stabilizing its dividend, yet cutting down its dividend payout can stress its investor's confidence in the company. As always, it is necessary to conduct further research other than this article and consider their financial goals before making investment decisions.

To extend, T-Mobile is a dividend stock with a smaller yield yet has seen rapid growth since its merger with Sprint, with free cash flow climbing significantly. Its target growth and debt management have promised double dividend growth in the future, making it arguable to be an attractive option for long-term investors for growth potential. Ultimately, it's necessary to understand what your portfolio needs to succeed.

# Cryptocurrency Amid Regulatory Scrutiny: Stablecoins

Thomas Wu, Samson Suen

## Overview

*In the ever-changing cryptocurrency ecosystem, stablecoins have developed as a distinct type of digital asset. Many people consider stablecoins to be a promising cryptocurrency because they realize their revolutionary potential. But is this actually the case?*


## Regulatory Scrutiny

Stablecoins are gaining popularity and impact in the financial ecosystem, leading to increased regulatory scrutiny across multiple dimensions. Regulators are actively watching stablecoins to address concerns about market manipulation, money laundering, and financial instability. Key areas of scrutiny include the transparency and adequacy of reserve backing to maintain price stability, compliance with anti-money laundering (AML) and know your customer (KYC) regulations to prevent illicit activities, assessment of systemic risks posed by stablecoin adoption, and the impact of stablecoins on market integrity and investor protection. Furthermore, regulatory agencies are debating how stablecoins should be classified within existing frameworks and whether specialized legislation is required to efficiently control these digital assets.

## Innovative Potential

Despite the scrutiny, Stablecoins are becoming increasingly popular. Castle Island Ventures issued a report earlier this month. According to Castle Island's stablecoin report, “In the first half of 2024, stablecoins settled (according to our adjusted estimates) more than $2.6 trillion in value.” According to their research, the primary reason for this is its price stability. Stablecoins are intended to maintain a stable value by linking their worth to a reserve asset, such as a fiat currency or commodity, hence reducing the volatility experienced in other cryptocurrencies. As a result, stablecoins’ stability makes them suited for a wide range of applications, including ordinary transactions and savings. The capacity to maintain a constant value is critical for consumers wishing to reduce the dangers associated with price volatility in the cryptocurrency market. One example is USDT (Tether), which is the most popular stablecoin due to its price consistency.

## Conclusion

Stablecoins are a promising innovation in the cryptocurrency space, potentially alleviating volatility in digital assets. However, as the market evolves, consumers must remain informed and aware of the possible risks of cryptocurrencies.

*Image from (Investopedia)*


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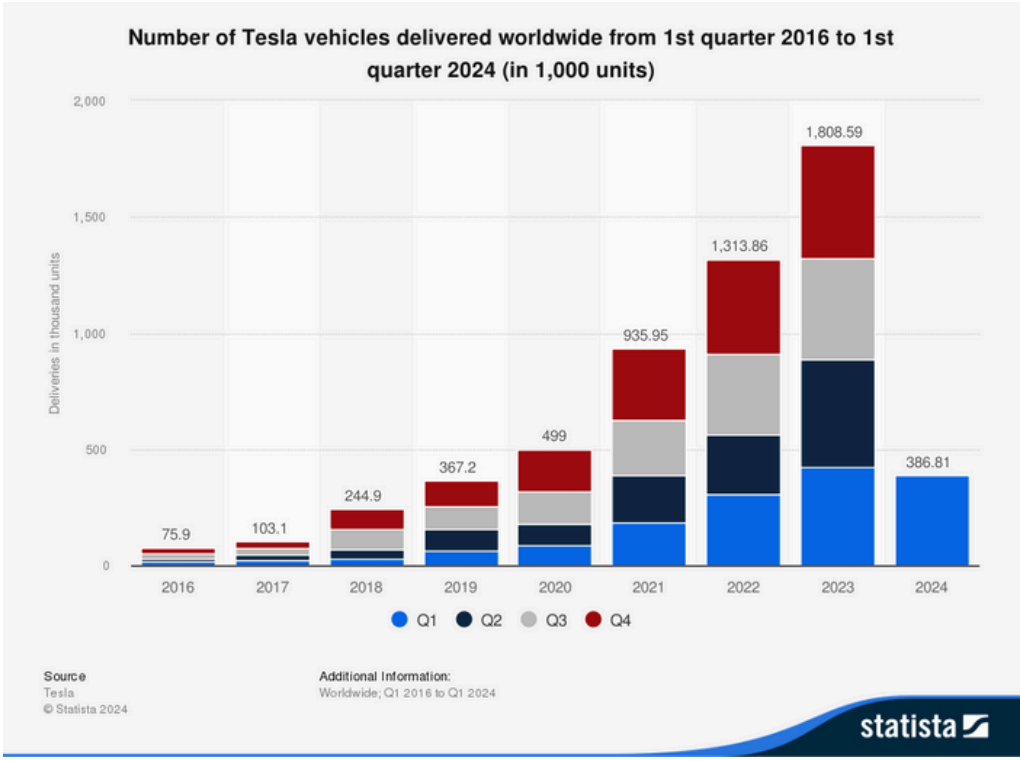
# Automation in the Workplace

**Tony Huang, Sebastian Ng**

Robots, AI, automation, the talk of the century — what was once fiction is now something of reality. The impacts are undeniably significant. From the large-scale sophisticated GAC Chuanqi's facility in Hangzhou to the intricately designed large language model customer chatbots, it is now something we depend on for the success of industrial economies. While this robotization in industry seeks to increase the efficiency of companies to satisfy our endless stream of demands or to improve task accuracy in unprecedented ways, they also have unintended drawbacks that may affect the socio-economic landscape in profound ways. As we delve deeper into the era of automation, it becomes increasingly evident that the benefits and challenges are intertwined in a complex web of consequences.

On one hand, AI and automation have revolutionized sectors of the economy. From an increased accuracy and precision during production along with the ability to perform mundane calculations within milliseconds, these increasingly advanced technologies improve companies' efficiency and productivity in various sectors of the economy. Take Tesla cars, a widespread transport of choice in Hong Kong as an example. In terms of production, Tesla's world-leading automated production line is a famous example of how well-integrated automation technology can fuel economic growth.

An analysis of the economic prospects of Elon Musk, Tesla's CEO's decision to integrate an automated production line for his company by Deutsche Bank, a "world's leading financial services providers" indicates that these robots allow for "meaningful cost savings by the end of the decade [for Tesla]". In the same analysis summarized by Quartz, a world-renowned business news story provider, the calculations would save an estimated $141 million per year by 2027, "assuming that a manufacturing worker is on the clock for 40 hours a week and gets paid $62,400". These estimates provide a very optimistic view on the economic benefits of introducing automated technology in the workplace — they can not only cut costs during production, a more streamlined system would allow the more mundane and dangerous tasks to be completed and delegated to an inanimate object, further supporting a safer workspace environment and fostering a culture of innovation and efficiency within the company.




The graph above shows Tesla's increase in deliveries worldwide, with climate change becoming a pressing issue, an increased demographic of people have decided to buy EVs such as Tesla. This therefore suggests an incremental surge in demand as seen above. Though supply is finite, the production of the supply can definitely be made more efficient as it has been by the automated factories of Tesla. If this trend continues, the demand will only get higher, and the efficiency brought by automation to aid with supply will definitely bring

positive influence. However this means that we will become dependent on technology, our seamless supply of EV's will depend solely on the presence of automation. This puts forward numerous risks such as machine failure and cybersecurity. The loss of Human skills and expertise in these areas will diminish, workers may become overly dependent on automation leading to a decline in problem solving and critical thinking skills.

Continuing on this point, there are definite drawbacks regarding the surge in automation. Dependency on technology should definitely not be overlooked. It proves to be a form of captivity as we are confined solely to what technology can give us. The replacement of numerous jobs or tasks around the world with automotive technology has spurred many discussions regarding job safety, a common topic surrounding these algorithmic tools. The graph above displays the increased demand in production of Tesla's EVs, which requires the efforts of rather low-skilled factory workers. As this case is universal to most companies, the more low skill, low wage jobs are at most risk of automation. However, high income jobs still hold a humanitarian value. This will inevitably widen the wage gap as the high income owners are able to invest heavily in automative technologies that will most likely boost their revenue, through the reasons mentioned earlier. But the lower class that depend on the replaceable jobs will be valued less than literal robots.

***"You're either the one that creates the automation or you're getting automated."***

*— Tom Preston, software developer and entrepreneur*

Through this quote, Tom Preston highlights an important perspective on the impact of technology and automation on the workforce. He emphasizes the double-edged sword of technological advancements, a source of opportunity and a threat to employment.

Technology is a definite source of opportunity, as the quote emphasizes the importance of being at the forefront of technology and innovation. He suggests that those who develop automation technologies are most likely to be in a position of power and influence. Tom Preston who has become a billionaire through the founding of GitHub, an online code-sharing platform, has become a living embodiment of his own quote.

Contrastingly, he mentions the idea of "getting automated" which sounds a bit like getting replaced and this is exactly what he is trying to get at. Everything has a flaw and with automation comes job displacement. The reality is that many jobs are repetitive and can be easily mimicked by simple algorithms.

Preston is giving all of us a wake-up call, to not fall behind this rapidly changing world. Workers who do not keep up with technological changes will find themselves at a disadvantage.

*This article was assisted by Artificial Intelligence (AI).*

# Economics Quarterly Year 1 (2023/2024) Highlights

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