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STATE AND PRIVATE DIGITAL PLATFORMS: HOW CAN THE NEXT TECHNOLOGICAL BREAKTHROUGH BE ACHIEVED?

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Abstract. The article is devoted to the analysis of the possibilities of new technologies to become the basis of the next world cycle and to create trends in labour productivity, which many countries of the world are facing. The *subject* of the study is new technologies and their impact on economic development. The *purpose* of the article is to highlight the economic trends of new technologies, which will become the basis for the rise of the next world economic cycle and create trends of increasing labour productivity, with the decline of which most countries of the world have been confronted. The article employs a range of analytical and synthetic *methods*, as well as systematic and comparative data analysis. The information base of the article comprises scientific articles, monographs and open statistical data from internet resources. The article provides an analysis of trends in the development of digital currencies. The article examines indicators of labour productivity, inflation rate, GDP growth rate, public debt. The research has shown that for the last 20 years there has been no stable sustainable growth of labour productivity, GDP growth has slowed down, which in recent years has practically not grown, the most developed countries are increasing public debt, as the stagnation of labour productivity does not allow to make projected budgets and pay old debts. This suggests that further economic growth requires a new wave of technological progress, which can be ensured by an excess of "cheap money". Debt is growing and serves as an additional emission of money that is hastily thrown into the economy, as in Japan and the US, for example, but it is not taken into account that this is very expensive money because the interest on the bonds issued has to be repaid, which places an additional burden on the budgets. In *conclusion*, with rising public debt and stagnating GDP growth, it will be difficult for the state to cope with the influence of big data, and managers of such companies can have a noticeable influence on the political system of any country. This suggests that further economic growth requires a new wave of technological progress, which can be ensured by an excess of "cheap money".

Keywords: cryptocurrency, performance, technology, tokenisation, big data.

JEL Classification: O30, Q55

1. Introduction

The first cryptocurrencies are known to have experienced a sharp increase in value. Bitcoin has undergone fluctuations, but has generally only increased in value (see Figure 1).

Starting in 2016, it was too easy to launch a new cryptocurrency. The project code itself was in the public domain. The talented developers of the original blockchain procedures that underpinned cryptocurrencies had long since done the hard work. To launch a new cryptocurrency, it was enough to copy the known code and make minor changes. Some didn't even make any changes, just changing the name of the company in promotional materials. Thousands of new cryptocurrencies were launched each year. Most of the new currencies that appeared after 2016 were created without any value or innovation. Many projects were not intended for transactions, but that didn't stop every new project from calling itself a payment medium. The emergence of a new cryptocurrency brought big investments with a minimum of uncomfortable questions from big

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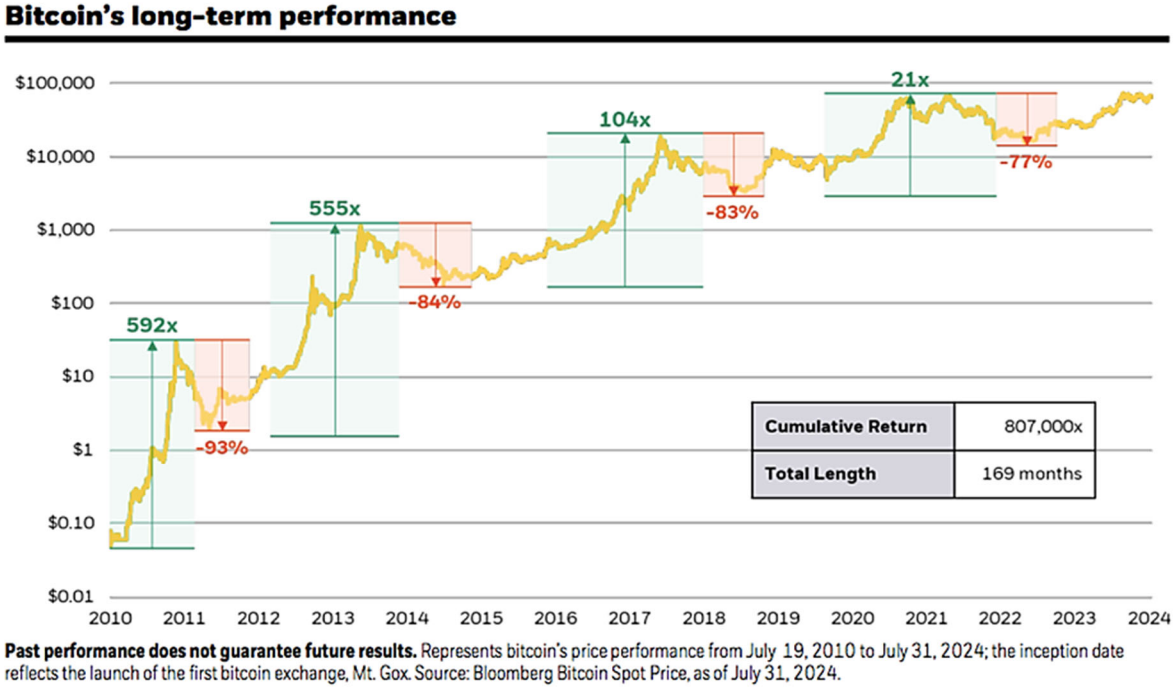

Figure 1. Cryptocurrency value dynamics in 2010-2024

Source: (BlackRock, 2024)

investors. The bubble of pointless investment grew steadily. All these investments took money away from the market of real projects and, of course, from real, audited profits to fill the budgets of almost every country. At the beginning of 2017, many people heard about blockchain technology. It is a decentralised and more secure technology for storing data about the transfer of information and money. In 2018, an advertising hype was created to turn a "simple technology" into a "magic technology" to solve all problems. People believed in this technology and invested billions of dollars in new projects.

In recent years, the decentralised finance (DeFi) market has practically formed, with a constantly growing volume of services and assets. The government has finally recognised the significant role of cryptocurrency in the modern world and is actively developing its own cryptocurrency, the CBDC, in an attempt to regulate cryptocurrency markets. It is also introducing licensing for companies operating in this market and developing procedures for the control and auditing of crypto-assets. Concurrently, private digital platforms that actively issue and utilise crypto-assets are expeditiously developing financial management technologies and beginning to predominate in both technological influence on the global economy, for example, in the domain of artificial intelligence, and political influence on state and international institutions. This engenders the challenging question of who will assume the primary role in increasing productivity: the state or the digital giants with the potential to displace the state? The present article aims to assess this impact and the role of digital giants in the global economy.

A plethora of authors have undertaken the study of digital platforms and the development of cryptocurrencies. In particular, Zutshi A., Grilo A., and Nodehi T. (2021) have conducted exhaustive research on blockchain technologies. Cumming D., Drobetz W., Momtaz P. and Schermann N. (2025) have demonstrated a particular interest in decentralised digital platforms. Surucu-Balci E., Iris Ç., Balci G. (2024) have conducted an investigation into cloud platforms. The authors of the article in their 2022 and 2023 papers explore fintech and digital currencies (Baltgailis, Simakhova, 2022; Baltgailis, Simakhova, Buka, 2023). Notwithstanding the considerable research activity concerning digital currencies and platforms, it is pertinent to analyse the potential of novel technologies to enhance productivity.

The objective of this article is to ascertain the cardinal possibilities and economic trends of new technologies, which will serve as the foundation for the emergence of the next world economic cycle. The aim is to establish trends of increasing labour productivity, a phenomenon with which most countries worldwide have grappled.

2. Methodology

In order to achieve the aforementioned objective, the article employed a range of general scientific

methodologies, encompassing analysis and synthesis, systematisation, and the comparison of data. The information base of the article was composed of scientific articles, monographs, and open statistical data from internet resources.

3. Results

The first cryptocurrency enthusiasts tried to build technologies to work with finances without relying on intermediaries and states, all these projects got out of control and did not require the involvement of lawyers and state regulation.

A recent study, based on publicly available information and sources, claims that nearly 80 percent of initial coin offerings (ICOs) are scams, and only a meagre 8 percent of the floated ICOs manage to reach the trading stage on the various cryptocurrency exchanges (Investopedia, 2018). An initial coin offering (ICO) is the cryptocurrency industry's equivalent of an initial public offering (IPO). A company seeking to raise funds for the development of a new blockchain application or service utilising a cryptocurrency may opt for an ICO as a means of financial procurement.

SiAn, an official from the European Central Bank, emphasised that the primary structural deficiency of fiat crypto assets, which constitute the majority of the crypto market, is their inability to offer any societal benefit. In Europe, in 2021, the total capitalisation of all crypto assets reached 2.5 trillion EUR (Panetto, 2022).

The Chainalysis Global Crypto Adoption Index has confirmed the mass adoption of cryptocurrency on a global scale (154 countries were surveyed). The global adoption of cryptocurrency is increasing, and there are several reasons for this. Firstly, it allows users to preserve savings in case of devaluation of national currencies. Secondly, it overcomes restrictions on currency transactions. Thirdly, despite all the existing risks, it allows for money transfers and business transactions to be performed. In developed countries and states where cryptocurrencies are already widespread, it is anticipated that the growing volume of transactions and explosive growth (DeFi) of decentralised finance will assume this role. In emerging markets, by contrast, this role will be played by peer-to-peer (P2P) platforms.

Global big data companies can leverage their vast customer bases to introduce fast and convenient cryptocurrencies to their customers, which could theoretically destabilise the existing financial system and increase the risk of third-country solutions and technologies dominating the payments market. As a result, the central bank may choose to ban private digital currencies to preserve its monopoly, as seen in China and India.

Today, large multinationals play a disproportionately large role in global flows. Multinationals account for about 30% of trade, 60% of exports and 82% of exports of knowledge-intensive goods. This gives them significant influence over global flows, especially those related to knowledge. As a result, they are central not only to managing their own resilience but also, more broadly, to ensuring the resilience of the world (McKinsey Global Institute, 2023).

People and companies are becoming more transparent, and a lot of data is being collected and fed into IT systems like BlackRock or Bank of America. Based on this data, AI systems will make decisions about loans, about ratings, sometimes even about the possibility of going public, about investments, about access to public funds, and so on. Thus, the valuation of the company itself will change in real time, based on the relevance of the company's activities to the "common good". The monopoly position of big data gives them the ability to disregard the laws of entire states if their interests do not coincide with those of the state.

Meta Platforms is set to be hit with the EU's first antitrust fine for tying its Marketplace classifieds service to Facebook's social network. The European Commission's move comes more than a year and a half after it accused the US tech giant of giving its Facebook Marketplace classifieds service an unfair advantage by bundling the two services.

The EU competition watchdog also said Meta had abused its dominant position by unilaterally imposing unfair trading conditions on competing online classifieds services that advertise on Facebook or Instagram (Reuters, 2024).

Meta Platforms faces its first EU antitrust fine for linking its Marketplace classifieds service to Facebook's social network. The European Commission's decision comes more than 18 months after it accused the US tech giant of unfairly bundling Facebook Marketplace with its social network, giving it an unfair competitive advantage.

The EU competition authority also stated that Meta had abused its dominant position by unilaterally imposing unfair trading conditions on competing online classified ad services that advertise on Facebook or Instagram (Reuters, 2024). The maximum fine that Meta could incur under EU sanctions for this infringement is 13.4 billion USD – 10% of its global revenue for 2023. However, it is typical for EU sanctions to fall below this maximum limit (Reuters, 2024).

Moreover, the European Commission has initiated legal proceedings under the Digital Markets Act (DMA) against Alphabet, Apple, and Meta, citing concerns that their compliance measures fail to meet the DMA's requirements (European Commission, 2024). In the case of Apple and Alphabet, the Commission is investigating whether their app store policies violate the DMA's requirement that gatekeepers must allow

app developers to "redirect" consumers to external offers without charging. For Alphabet in particular, the Commission is investigating whether it favours its own vertical search services, such as Google Shopping and Google Hotels, over competing services, in breach of the DMA. For Apple, the investigation focuses on whether its web browser selection screen design prevents users from freely choosing services, in breach of its DMA obligations.

As for Meta, the Commission is assessing whether its newly introduced 'pay or consent' model for EU users is consistent with the DMA. This regulation requires gatekeepers to obtain users' consent before combining or cross-using personal data (Lyons, 2024).

In recent decades, Ireland has served as a tax haven for major technology companies due to its low corporate tax rate. Many companies set up Irish subsidiaries to license their intellectual property and pay royalties through these entities to take advantage of the favourable tax environment.

The European Commission first accused Ireland of providing illegal tax advantages to Apple in 2016 (European Commission, 2016). Dublin always insisted on the legality of its actions, but the court agreed with the prosecution's version of events. On the same day, another long-running case against another American giant, Google, came to an end. After ruling that the company had abused its dominant position in the European market, the court fined it 2.4 billion EUR (BBC, 2024).

The European Court's ruling means that Ireland will have to recover underpaid taxes from Apple – exactly what Dublin has been trying to avoid in eight years of litigation. The Irish authorities argue that low taxes make the country an attractive platform for large IT companies, more than offsetting any underpayment of tax. That is why Apple's Europe, Middle East and Africa office is based in Dublin, where corporation tax is one of the lowest in the European Union.

Formally, the corporate tax rate is set at national level and is not subject to EU jurisdiction. However, Brussels has broad powers to regulate state aid to EU member states, and in this case the tax cut for Apple is effectively a subsidy to the American company, leading to unfair competition.

There has been a well-documented and intense conflict between Big Tech and the Australian government over access to the country's information market. Facebook even went so far as to block certain sources of information and threaten to disconnect Australia from its platform in response to government demands that Big Tech pay for information from private Australian providers.

"These actions will only confirm the concerns expressed by a growing number of countries about the behaviour of big tech companies who think they are bigger than governments and that the rules should not apply to them," wrote Australian Prime Minister Scott Morrison, who pointedly criticised Facebook's decision to "unfriend" his country in a post on the platform. "They may be changing the world, but that doesn't mean they run it." (CNN Business, 2021)

Chinese startup DeepSeek has sent the share prices of several major US tech companies tumbling after it released a new open source model: the DeepSeek-R1. The company claims that the R1's performance matches that of the US company's original OpenAI model, using a fraction of the resources. The Chinese model is also much cheaper to run. The model is available to the public free of charge, and developers who want to build applications on top of it will benefit. While OpenAI, Anthropic, Google, Meta and Microsoft have collectively spent billions of dollars training their models, DeepSeek claims to have spent less than 6 million USD on hardware to train the R1's predecessor, DeepSeek-V3. Unlike the Chinese platform, the US digital platforms have preferred to sell their services, earning billions of dollars in the process.

US officials have already said that DeepSeek may have used models developed by OpenAI, a US company involved in President Trump's grandiose Stargate project, "by far the largest AI infrastructure project in history", in which hundreds of billions of dollars are expected to be invested (Forbes, 2025). The US has already introduced regulations, or sanctions, to cut China off from advanced chips and divert investment to the US (BBC, 2025).

In considering the issues of unity and the struggle between opposites, even Hegel recognised that the positive and negative elements are inherently independent of each other, with each element representing a displacement of itself into its opposite. This process of disappearance of opposites is the closest form of unity that they can achieve, and this is achieved through contradiction (Hegel, 2021). Thus, sanctions can be a powerful incentive for rapid development for those against whom they are directed, and can become the cause of economic decline and technical stagnation for those who seek to restrict competition and the free exchange of ideas through sanctions, a true manifestation of the law of unity and the struggle of opposites. This is how the laws of dialectics work, and no one has yet managed to circumvent them.

In the United States and Europe, preparations are underway for the parallel circulation of private and public currencies, a development that has prompted considerable concern. Among American cryptocurrency owners, 73% intend to consider a candidate's stance on crypto when casting their vote for the next president. It is estimated that approximately 40% of American adults currently possess cryptocurrency, with some projections suggesting the figure could reach as high as 93 million individuals.

However, the Federal Reserve offers a more conservative estimate, stating that only 7% of American adults (~18 million) have used or held cryptocurrency, while one in five Americans (21%) currently owns it (Forbes, 2024).

At the recent bitcoin conference, Donald Trump announced his intention to make the United States the cryptocurrency capital of the world during his election campaign. He also pledged to create a "Presidential Advisory Council on Bitcoin and Cryptocurrencies" and promised that the rules would be written by people who love the industry, not hate it; he also promised to simply keep the US government's current bitcoin holdings. In addition, Senator Cynthia Lummis (a Republican from Wyoming) presented a legislative draft proposal in the aftermath of Trump's speech, proposing the establishment of an official U.S. federal reserve comprising 1 million bitcoins over a five-year period. The proposal suggests that the primary cryptocurrency be retained for a minimum of 20 years and utilised for the purpose of debt repayment by the U.S. (Coindesk, 2024). At prevailing prices, a total of 1 million bitcoins, under specific conditions, have the potential to attain a valuation of tens to hundreds of billions of dollars. This would be a considerable sum, even when considering the volatility of bitcoin. This suggests that U.S. leaders possess a comprehension of the utilisation of private currencies and the capacity to exercise control and regulate them.

In Europe, the President of the ECB, Christine Lagarde, also refers to the possibility of controlling the stability of the existence of parallel private and public currencies. She refers in particular to the European development of MiCA.

The 150-page MiCA framework is rooted in existing EU securities trading regulations; however, the compliance burden may prove challenging for companies with limited familiarity with the relevant regulatory requirements. MiCA does not merely replicate traditional stock and bond regulations; rather, it adapts existing regulations to accommodate innovative crypto instruments utilised for payments, investments, and other purposes. For example, unlike securities prospectuses, crypto white papers can be published without prior regulatory approval. The framework also introduces measures to prevent market abuse and insider trading, mirroring safeguards in traditional finance. While the EU crypto industry has generally welcomed MiCA, the costs of failing to meet its standards are high. Non-compliant companies could face millions of euros in fines, potentially up to 12.5% of their annual turnover (BIS, 2022).

So in a world awash with public and private money issued to supposedly make life easier for business, there are still more uncertainties than guideposts to the well-being of the global economy. Doubts about the state's ability to regulate financial markets arise when inflation in the tens of per cent burns up people's savings and attempts to stabilise the situation through high bank interest rates make money expensive and strangle the economy with high production costs (Baltgailis, Simakhova, Buka, 2023).

It is evident that the managers of large corporations, unlike government officials, are perfectly capable of controlling production costs, competently preparing current and strategic plans and, most importantly, implementing them without political red tape, otherwise they would not have become global giants with a strong financial base. In this respect, the ideas of Klaus Schwab, President of the World Economic Forum (WEF), that the state is incapable of sustainable development and can be led by companies that have opted for environmental, social and governance (ESG) considerations, which are becoming increasingly relevant for sustainable value creation (Schwab, Mallerett, 2020).

It is an inevitable question for any researcher to consider: how will the concurrent circulation of fiat money and a multitude of private currencies, including bitcoins, stablecoins and nascent digital state currencies (CBDC), be regulated, and what role will global big data platforms play in this regard? It is also imperative to consider derivatives, secondary fiat and digital currencies, which have the potential to function as a medium of circulation and can be issued by a wide range of private entities. These have been a contributing factor to the global financial crisis of 2008. How to make sense of all this money and how to guarantee the stability of this currency? The very exchange of fiat money for the state digital money will have to be maintained in the ratio 1:1, otherwise the population and the economy can collapse this ratio, if any advantages will get private currency, and it is not far to the crisis, especially if the state rushes to save the situation. In the meantime, China and India decided not to go to extremes and simply banned private cryptocurrencies.

Shoshanna Zuboff, a prominent expert in the field of digital platforms and a professor at Harvard University, has expressed a personal conviction regarding the contradictory nature of the relationship between society and big data. In her discourse on the logic of the relationship between society and digital platforms, Zuboff has drawn attention to a contradiction that, from the outset, this logic reflected the social relations of a one-way mirror, rather than defining the ultimate goal, which was the opposite of the declared goals. "We rushed to the internet expecting empowerment, the democratization of knowledge, and help with real problems, but surveillance capitalism really was just too lucrative to resist. This economic logic has now spread beyond the tech companies to new surveillance –

based ecosystems in virtually every economic sector, from insurance to automobiles to health, education, finance, to every product described as 'smart' and every service described as 'personalized.' By now it's very difficult to participate effectively in society without interfacing with these same channels that are supply chains for surveillance capitalism's data flows. Democracy is also eroded," continues Zuboff, "from without, as surveillance capitalism represents an unprecedented concentration of knowledge and the power that accrues to such knowledge. They know everything about us, but we know little about them. They predict the future, but for someone else's benefit. Their knowledge extends far beyond the compilation of the information we gave them. It's the knowledge that they have produced from that information that constitutes their competitive advantage, and they will never give that up. These knowledge asymmetries introduce wholly new axes of social inequality and injustice." (Zuboff Sh. 2019) In her view, the ability to align supply and demand with people's needs was replaced by a new economic logic that offered a quick path to monetisation and, consequently, competitive advantage for platforms.

This path to monetization is particularly evident in the example of asset tokenization. In essence, from existing financial fiat and digital assets, real services and tangible production create monetary assets, that is, the essence of these assets themselves is removed and transformed into a new monetary quality, endowing them with the ability to be actively traded on digital platforms without intermediaries and where Big data will play the main role and benefit. McKinsey estimates that tokenised market capitalisation by asset class could reach around 2 trillion USD by 2030 (excluding cryptocurrencies and stablecoins). The pessimistic and optimistic scenarios range from around 1 trillion to around 4 trillion USD respectively. This estimate excludes stablecoins, including tokenised deposits, wholesale stablecoins and central bank digital currencies (CBDCs) to avoid double counting (McKinsey, 2024). Asset management giant BlackRock has even bigger tokenisation challenges. Tokenisation remains a central pillar of BlackRock's digital asset strategy. By tokenising its funds, BlackRock aims to deliver significant benefits to investors, including the ability to issue and trade assets on the blockchain, improve access to on-chain offerings, enable instant and transparent settlements, and facilitate seamless transfers between platforms. The company has set an ambitious goal of tokenising 10 trillion USD of assets in partnership.

Tokenisation of Real-World Assets (RWA) is defined as the process of converting rights to various assets, ranging from bonds and stocks to real estate and cultural properties, into blockchain-based digital tokens. This innovation promises to enhance liquidity, transparency, and accessibility, thereby democratising asset ownership by leveraging modern technologies (Forbes, 2024).

Blockchain technology plays a central role in these digital transformations, acting as a secure and immutable ledger. It ensures that data is stored and recorded without the possibility of unauthorised modification, copying or deletion. As a digital "book of trust", blockchain serves as a bridge between the physical and digital worlds. Distributed ledger technologies have the capacity to redefine the concepts of trust and transparency. They facilitate the digital recording of objects or rights from the physical world via unique identifiers. Furthermore, tokenization endows these objects with new properties that can be utilised in economic activities.

In a digital age where trust is paramount, several elements are critical to ensuring trust in the digital environment: trust in content, identity, ownership, authenticity and truth. Tokens will play a fundamental role, representing physical assets in the digital domain while extending their functional capabilities. Tokens will encapsulate identity and value within a digital protocol.

As a modern accounting system, blockchain differs from traditional systems in its approach to recording and managing data. Unlike traditional systems, blockchain focuses on accounting for objects in the form of tokens, which are digital representations linked to distributed ledger technology. The system leverages advanced encryption, open protocols, distributed information storage, and the ability to transfer digital data directly between addresses without intermediaries. These features ensure the reliability, transparency and efficiency of transactions involving tokens, making blockchain a revolutionary technological solution for the digital economy.

The purpose of tokenising backed assets is to create a more accessible and liquid way of investing in these assets. Tokenisation divides assets into small shares represented by digital tokens, allowing investors to buy these shares at a lower cost. Tokenised assets pave the way for a much easier process of trading and transferring ownership, as tokens can be easily transferred and traded on digital platforms. Appropriate oversight and supervision will be a prerequisite for this endeavour. In embracing evolution and change, central banks and the private sector should follow key guiding principles to ensure that the monetary system harnesses innovation in the public interest:

– First, the tried-and-tested division of roles between the public and private sectors in a two-tier system remains the cornerstone;
– the second principle is to maintain a level playing field that promotes innovation and financial inclusion;

– third, the future monetary system must meet the highest standards of data security and privacy, while ensuring the integrity of the system by protecting it from illegal activities such as money laundering, terrorist financing and fraud (BIS, 2023).

The Bank for International Settlements (BIS) has expressed the opinion that, in order to encourage the joint development of new technologies, there is a necessity for regulated private companies. This is a distinction that can be made between them and the DeFi space, where independent development is undertaken by frequently unregulated companies. This could ultimately result in a scenario akin to that observed in China, where private digital currencies are prohibited.

In the joint book "COVID19: The Great Reset", Klaus Schwab, promoting the stability of global corporations, notes that: "They have made stakeholder capitalism and environmental, social and governance (ESG) considerations increasingly relevant to sustainable value creation (ESG can be considered as the yardstick for stakeholder capitalism)." (Schwab, Mallerett, 2020, p. 129)

Pointing to investment giant BlackRock's active involvement in stakeholder capitalism, Schwab argues that this is further evidence that companies with high ESG ratings have outperformed their peers in the face of the pandemic, not because of reduced exposure to fossil fuels, but because ESG companies tend to be more resilient due to their holistic nature. This ability to manage risk intelligently is a key competitive advantage, as Schwab asserts. However, this advantage is arguably more attributable to their global positioning, which fosters a holistic, rather than monopolistic, character.

The "trilemma" of the relationship between integration (or proxy globalization) and democracy is discussed, with the observation that significant decisions are made at the supranational level, thereby weakening national sovereignty. It is asserted that globalization will always be constrained unless there is a willingness to relinquish part of one's sovereignty or democratic principles. In order to solve this "political trilemma", the authors begin to build a strange and very veiled construction, which they call "stakeholder capitalism", which will also include environmental, social and governance (ESG) aspects. The combination of economic integration (a proxy for globalisation) and democracy implies that important decisions have to be taken at a supranational level, which somehow weakens the sovereignty of the nation state. In the prevailing circumstances, the "political trilemma" framework posits that the progression of globalization must be constrained in order to avoid the relinquishment of national sovereignty or democratic principles. Consequently, the resurgence of nationalism renders the retreat of globalization unavoidable in the majority of the world, a phenomenon that is particularly salient in the West.

This means that the involvement of global companies in ESG is becoming a vehicle for sustainable development and can be seen as a criterion for stakeholder capitalism. 60 business leaders have already signed Public Commitments of Companies to report not only on financial issues, but also on their ESG impacts. It is noteworthy that 60 prominent leaders from various industries have expressed their commitment to the Stakeholder Capitalism Metrics. These metrics, which were published in September 2020 by the World Economic Forum and its International Business Council (IBC), encompass environmental, social, governance, and disclosure aspects. The objective of these metrics is to evaluate the creation of long-term enterprise value for all stakeholders (WEF, 2021). In the context of a monetary diversity environment where the control criteria and auditing procedures for digital currencies have not yet been fully defined, it is challenging to discern a method for the monitoring of the fulfilment of these metrics. It is imperative to ascertain who will oversee the implementation of these commitments on such a large scale, in order to prevent their transformation into a mere publicity exercise. Finally, when governments fail to deal with global problems and drag everyone into a debt hole, businesses step in, hiding behind some social responsibility for the sake of attractiveness. Here one can remember Immanuel Kant, who formulated the idea of the categorical imperative, reasoned about the morality of actions and tried to give a definition of freedom of choice, and came to the conclusion that only arbitrariness can be free. And only law contains the categorical imperative (Kant, 1989).

However, in order to increase incomes, it is necessary to increase labour productivity, which has stagnated in recent decades despite exponential growth in technological progress and investment (OECD, 2024). This is a point noted with concern by Schwab himself when discussing the Fourth Industrial Revolution (Schwab, 2017). According to Schwab, new innovative goods and services created in the process of the Fourth Industrial Revolution have higher functionality and quality and are "non-competitive", have zero marginal costs or enter markets through digital platforms, displacing competitors and intermediaries. All of this results in lower prices, while traditional statistics are unable to capture the added value of consumer surplus. Indeed, the utilisation of applications from the App Store, WhatsApp, and numerous others, often at no financial cost, has the potential to substantially mitigate the economic burden associated with these services, thereby enhancing the overall quality of life. This assertion is further substantiated by Mark Zuckerberg, who elucidates that Meta's

business model is predicated on the creation of superior experiences and services for individuals. To this end, it is imperative to ensure uninterrupted access to optimal technology and to avoid the constraints imposed by a competitor's proprietary ecosystem, which may impede the full expression of human creativity (Zuckerberg, 2024).

Rather, the next industrial revolution is really coming, but not yet as a result of technological change, but in the process of opening up opportunities for finance capital, because someone has to finance the production of these gadgets and technologies. In this respect, an interesting conclusion was reached by the economist Nikolai Kondratiev at the beginning of the last century, when he was trying to determine the causes and phases of the ebb and flow of the world economy.

Economists have identified five Kondratiev waves since the 18th century.The first wave was triggered by the invention of the steam engine and lasted from 1780 to 1830.The second wave emerged due to the development of the steel industry and the expansion of rail networks, spanning from 1830 to 1880. The third wave was driven by advancements in electrification and innovations within the chemical industry, spanning from 1880 to 1930. The fourth wave, fuelled by the emergence of the automobile and petrochemicals, lasted from 1930 to 1970. The fifth wave, characterised by the proliferation of information technology, commenced in 1970 and continues until the present. It is the conviction of certain economists that the present era is the dawn of a sixth wave, the characteristics of which they believe to be driven by biotechnology and healthcare.

In his book "Economic Cycles", Joseph Schumpeter argued that a series of wave-like patterns of varying lengths, including Kondratiev Waves (among other shorter waves), could explain historical and cyclical trends in the economy. He identified technological innovation as the main driver of Kondratiev Waves (Shumpeter, 2014).

In his works of the 1930s, Schumpeter actively developed the ideas of N. D. Kondratiev; moreover, he was the first to introduce the concept of Kondratiev cycles (K-cycles) into the world economic literature. Schumpeter understood these to be long macroeconomic and price cycles, initially estimated to last 50-54 years. Schumpeter linked each Kondratiev cycle to the next wave of innovation and the introduction of new major technological cases.

The theory of major conjunctural cycles seemed to encompass economic cycles of other lengths, with their phases of boom, crisis and depression. This idea was updated at the turn of the 20th and 21st centuries, when a number of works appeared on the correlations and interrelations between different cycles. The periodisation of the phases of the Great Cycle remains a controversial problem, as does their length.

This statement may initially seem counterintuitive. Health expenditures, which are categorised as pure expenses and regarded as something to be avoided if possible, can they serve as a catalyst for future economic growth and employment?At this juncture, it is pertinent to revisit the findings of modern growth theory.Machinery, capital and employment are merely superficially the most significant sources of economic growth. However, Kondratiev's seminal work posits that the primary catalyst for a new cycle or wave is the accumulation of inexpensive capital ready to be invested in the economy.

The following question is posited: is fiat money capable of providing a mechanism for the accumulation, accumulation and distribution of capital sufficient for the creation of new productive forces? As long as fiat money provides this mechanism, it retains its important quality of money as a measure of value. However, its ability to ensure the accumulation of capital, to remain a means of circulation and payment, and even to provide world money, is progressively diminishing. Inflation has reached a level that hinders the accumulation of capital, even in the world's major currencies. The system of stabilisation and circulation of these currencies is cumbersome, the system of control (auditing) over their circulation is too expensive and time-consuming, and the growing tension in the world political system is such that settlements between countries are in decline, settlement channels are blocked for political reasons, and fiat money loses the status of world money. It is imperative that the sixth wave is supported by inexpensive, technological capital that is acknowledged by the global community. This capital must be able to facilitate the development of new productive forces and halt the decline of fading globalisation, irrespective of borders and sovereignty. The objective is to establish the conditions necessary for the ascent of the sixth wave of the world economy.

As a challenge to the problems associated with the circulation of fiat money, numerous private digital currencies have appeared in the form of bitcoin, but with high volatility, which required correction, and more volatility-resistant stablecoins have appeared, and finally the process of issuing state national digital currencies in the form of CBDC is maturing, the process of tokenisation of assets is developing, which will allow to some extent the equalisation of traded assets according to the technology of their valuation, will reduce the costs and speed up the trading processes, and will allow wide access of buyers to the markets formed by digital tokens. In light of the growing public and corporate distrust of fiat money, BlackRock has tested bitcoin's investment characteristics in the real world and is considering

pairing it with gold. Bitcoin and gold are often compared as investment assets. Gold has a long-standing reputation as a reliable store of wealth, often used as a hedge against inflation and economic uncertainty. Bitcoin, on the other hand, has emerged in recent years as a digital store of value, attracting attention for its limited supply and decentralised nature. While gold offers stability and tangibility, bitcoin offers benefits such as divisibility, portability and transparency through its digital infrastructure. Both bitcoin and gold are commonly seen as a means of portfolio diversification and a hedge against inflation, which occurs when paper currencies depreciate. Figure 1 shows a graph of bitcoin's long-term growth. Bitcoin also appears stable compared to other assets such as major international currencies, stock indices, bonds and real estate Figure 2.

According to Fabio Panetta, a member of the ECB's executive board, only central bank money can provide an anchor of stability in the face of such diversity and types of money. The solution is to extend the modern two-tier monetary system to the digital age (Panetta, 2022). It is clear that there is a deep contradiction between the state and private digital platforms. The issuance of CBDCs will allow the state to transfer and store citizens' funds in a less risky, cheaper and safer way, using the authority and legal capacity of central banks, in most cases without intermediaries in the form of commercial banks. When fiat money is exchanged for government digital money, the entire process will be under government control, using DLT platforms created for international settlements in different national cryptocurrencies, as well as the possibility of control and audit in the DeFi sphere, as this sphere will be interested in using CBDCs, as it is now, when cryptocurrency owners see the ultimate goal of their manipulations as the acquisition of fiat currency. One can also fight inflation by issuing CBDCs with maturities (Bank of Canada, 2021). This phenomenon constitutes a formidable challenge to the prevailing system of private cryptocurrency circulation. It is imperative to ascertain the extent of central banks' authority over individuals' private lives.

For instance, the ECB recognises that the introduction of CBDC may precipitate financial instability within commercial banks, as they compete with the Central Bank for deposits and transactional fees. This could potentially result in a significant withdrawal of funds from intermediary banks (ECB, 2023). The ECB is currently contemplating the potential augmentation of

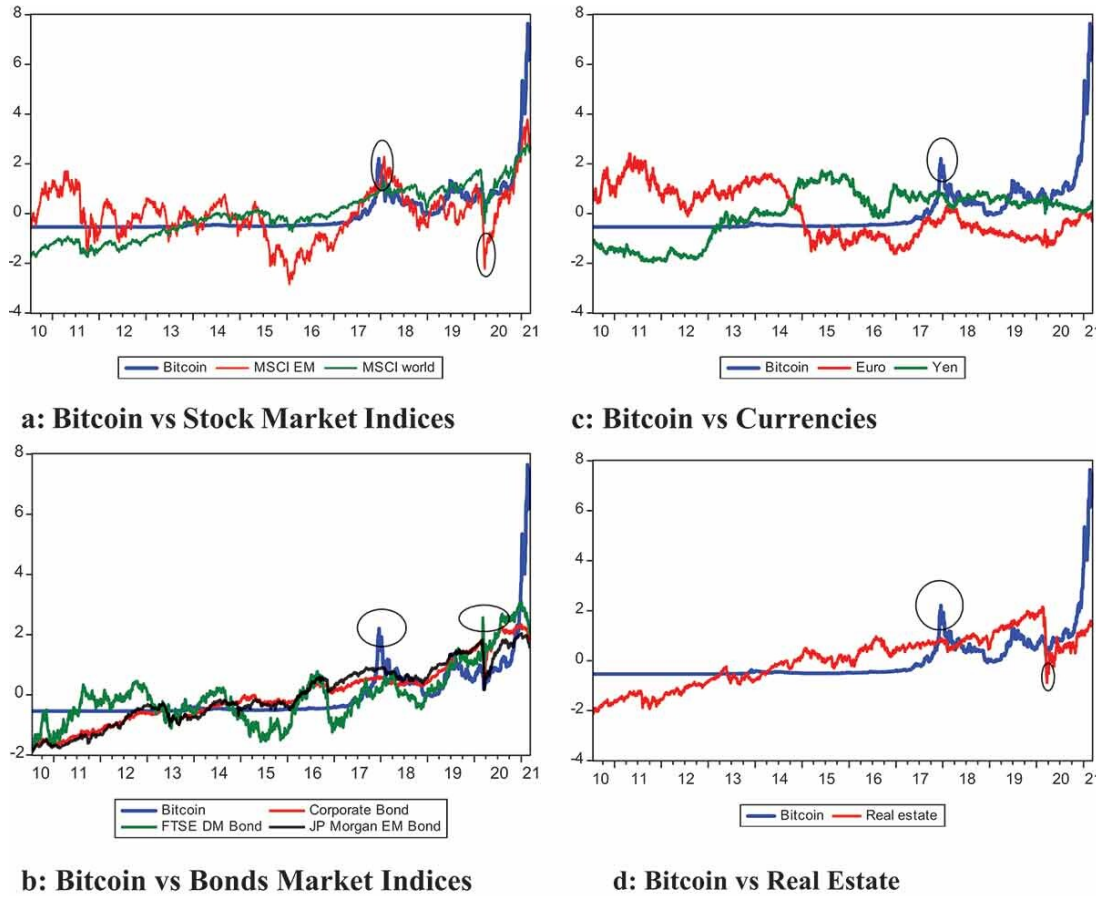

Figure 2. Bitcoin and Stock Market Indicies

Source: (Taylor & Francis online, 2024)

deposit accounts from 10 thousand to 300-500 million, a development that would enable eurozone residents to hold accounts directly with the ECB itself, bypassing commercial banks (ECB, 2020).

4. Discussion

In this article, the potential for big data companies to exert undue influence over governments and states, either through the threat of blackmail or the facilitation of mutually beneficial co-operation, has been demonstrated. This symbiosis was well reflected by the eminent American economist, analyst and journalist Michael Hudson in his seminal book "Killing the Host: How Financial Parasites and Debt Bondage Destroy the Global Economy", where he draws attention to the fact that the generally accepted mainstream economy, decorated with complex mathematics, as if it were an objective natural science, has become a lobbying attempt to eliminate state power in the field of regulation and taxation of rentiers (Hudson M, 2015). In his view, well-paid models promote the justification of "trickle-down wealth" as the status quo, as if it were generated by immutable economic laws. Is this not the source of the ESG methods promoted by Schwab, the "trickle-down wealth" of global structures in such an attractive social package? This is where the state often depends on big data, and this is where its monopoly position, which has been developing for years, often allows it to dictate its terms and receive monopoly rents. Doesn't ESG hide the main beneficiaries of the upcoming financial reforms and who will regulate whom? All these state and private digital currencies are pumping up the necessary assets for the sixth Kondratiev wave, plus tokenisation in the form of monetisation. Productivity is practically not growing and there are many reasons for this: difficulties in calculation, limits to productivity growth, no technological breakthrough, globalisation is blurring the data on national countries, as the main growth is at the level of big data and corporations, depriving national states (Fig. 3-5).

As demonstrated in Figures 3-5, there has been a decline in productivity in OECD, EU and US countries. In 2022, their productivity was negative, thereby hindering the possibility of economic growth in these countries (see Table 1).

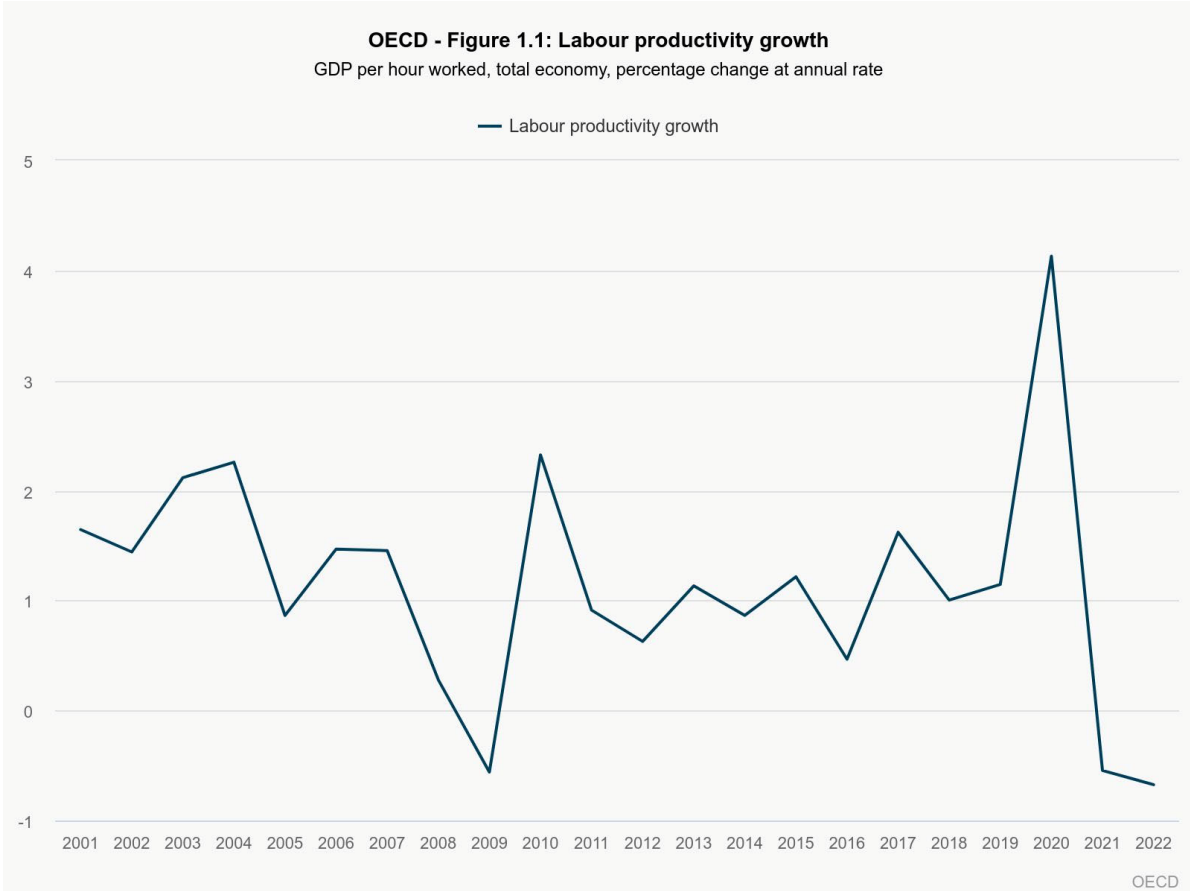

Figure 3. OECD labour producativity growth

Source: (OECD, 2024)

Figure 4. European Union labour producativity growth

Source: (OECD, 2024)

Table 1

Labour productivity growth in some countries in 2015-2024

Countries	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Ireland	24.61	-	-	-	-	-	4.16	-0.95	-12.08	-4.71
United States	-	-	-	-	-	-	2.03	-1.84	-0.89	2.59
Germany	-	-	-	-	-	-9.85	11.59	2.13	-1.48	-0.01
France	0.81	0.14	0.89	0.63	0.84	-7.39	4.16	0.16	-0.13	-
United Kingdom	-	-	-	-	-	-21.24	26.44	8.1	-0.76	-0.41
Canada	-	-	-	-	-		1.41	0.13	0.32	-1.26
China	7.08	6.95	7.21	7.14	6,42	2.76	9.05	4.8	4.27	-
Japan	-	-	-	-	-	-8.65	7.71	2.14	-0.53	-0.12
Latvia	-	-	-	-	-	-7.78	17.06	5.13	-1.72	0.11
Lithuania	-	-	-	-	-	-	3.5	-3.99	-2.9	-0.17
Ukraine	-	-	-	-	1.056	-0.41	8.67	-	-	-

Source: (CEIC, 2025)

As demonstrated in Table 1, there was a marginal increase in labour productivity in China; however, the remaining countries witnessed a decline in labour productivity during the 2022-2024 period. According to the findings presented in Table 2, inflation increased across all countries in 2022-2023, despite a decline in productivity. Notably, China exhibited a relatively stable inflationary environment, characterised by a low inflation rate. At the same time, GDP growth was completely insignificant, and in 2020-2022 virtually all countries experienced a decline in GDP growth (Table 3), against a background of rising public debt (Figure 6). This suggests that further economic growth requires a new wave of technological progress, which can be ensured by an excess of "cheap money".

Figure 5. USA labour producativity growth

Source: (OECD, 2024)

Table 2

Inflation rate of some countries in 2015-2024 (January), %

Countries	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Ireland	-0.6	0.1	0.3	0.2	0.7	1.3	-0.2	5	7.8	1
United States	-0.1	1.4	2.5	2.1	1.6	2.5	1.4	7.5	6.4	3.1
Germany	-0.2	0.5	1.6	1.4	1.3	2.1	1.2	4.2	8.7	2.2
France	-0.4	0.2	1.3	1.3	1.2	1.5	0.6	2.9	6	1.3
United Kingdom	0.3	0.3	1.8	3	1.8	1.8	0.7	5.5	10.1	4
Canada	1	2	2.1	1.7	1.4	2.4	1	5.1	5.9	2
China	0.8	1.8	2.5	1.5	1.7	5.4	-0.3	0.9	2.1	0.2
Japan	2.4	-0.1	0.4	1.4	0.2	0.7	-0.7	0.5	4.3	2.2
Latvia	-0.4	-0.3	2.9	2	3	2.2	-0.5	8.7	21.5	0.9
Lithuania	-1.5	0.9	2.3	4	1.7	3	0.3	12.4	20	0.7
Ukraine	28.5	40.3	12.6	14.1	9.2	3.2	6.1	10	26	4.7

Source: (Trading Economics, 2024)

5. Conclusions

The processes of asset tokenisation will become real processes of cheap money accumulation, when the monetised mass of digital assets in the form of tokens will flood the markets through prepared and adapted financial technologies, ensuring the rise of the sixth Kondratiev wave. In his theoretical model of the development of the phases of the great cycles, it was proved that the dynamics of the great cycles are subject to an internal pattern and their rhythm is a reflection of the rhythm in the process of expansion of the main capital goods of society. The process of expansion is characterised by its rhythmicity, which is associated with the accumulation and investment of capital. However, due to the presence of specific conditions, it cannot develop continuously at the

Table 3

GDP growth rate of certain countries in Q1 2015-2024, %

Countries	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Ireland	21.5	-2.5	-2.6	0.6	1.2	2.9	9.9	3.6	-5.4	0.9
United States	3.6	2.3	2	3.3	2.5	-5.5	5.6	-1	2.8	1.6
Germany	-0.2	1	1.2	-0.5	0.5	-2.2	-1.2	0.2	0.1	0.2
France	0.6	0.4	0.7	-0.1	0.8	-5.1	0.4	-0.2	0.1	0.2
United Kingdom	0.3	0.4	0.8	0.1	0.7	-2.7	-1	0.7	0.1	0.7
Canada	-0.6	0.6	1.3	1.2	0.2	-1.9	1.7	0.9	1	0.5
China	1.9	1.4	1.8	1.8	1.6	-10.4	0.5	0.8	2.3	1.5
Japan	1.6	0.8	0.8	0.1	0.2	0.5	0.3	-0.5	1.2	-0.6
Latvia	-1.7	-1.9	-1.7	-1.4	1.3	1.4	-0.5	-0.9	0.1	-0.4
Lithuania	0.4	0.2	1.1	1	1.4	-0.4	1.8	0.4	-1.9	1.1
Ukraine	-3.5	0.5	0.1	0.9	0.3	-0.7	-1.2	-19.3	2.4	1.2

Source: (Trading Economics, 2025)

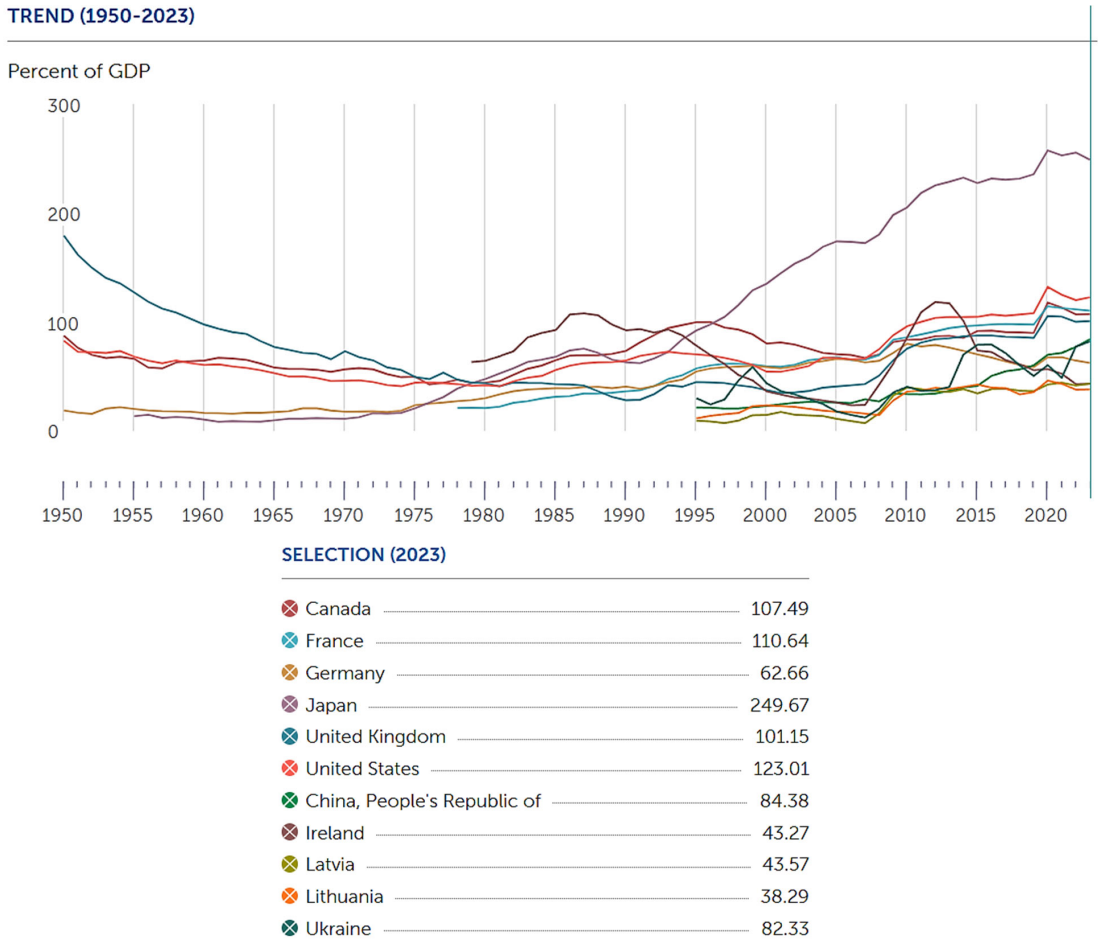

Figure 6. General Govermnmet Debt, % of GDP

Source: (IMF, 2023)

same pace. The occurrence of large cycles is regarded as a violation and restoration of economic equilibrium over a prolonged period. The primary cause of these cycles is attributed to the mechanism of accumulation, dispersion of capital, and the creation of new productive forces. The effect of this primary cause is further enhanced by the action of secondary factors.

It is evident that acknowledging this theoretical legacy would mark the commencement of the sixth wave, which is endeavouring to elevate the crest on the basis of digital technology. It is imperative to note that digital technology has not yet been identified as a fundamental discovery of science, in the same manner as electric cars, satellite navigation and

artificial intelligence. These technologies are representative of the fifth wave and have found application during the decline phase of this wave.

An examination of graphs depicting changes in labour productivity reveals that over the past two decades, there has been an absence of stable, sustainable growth in labour productivity. Fur thermore, there has been a decline in GDP growth, which has remained stagnant in recent years. The most developed countries are experiencing an increase in public debt, as stagnant labour productivity hinders the formation of predictable budgets and the repayment of outstanding debts. Consequently, the accumulation of debt has led to an influx of money into the economy, as evidenced in Japan and the USA. However, the implications of this practice, namely the costliness of this form of money and the necessity of interest payments on issued bonds, have not been sufficiently considered. This imposes an additional financial burden on budgets. With rising public debt and stagnating GDP growth, it will be difficult for the state to cope with the influence of big data, and the managers of such companies can have a noticeable influence on the political system of any country.

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