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(Swift) sanctions and the rise of parallel payment systems

A qualitative study of financial infrastructure and power dynamics in times of FinTech

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Abstract

In 2022, the West imposed sanctions of unprecedented scale on Russia following the war in Ukraine, including severing Moscow from the main global financial message provider, Swift, with the objective to harm the ability of Russian banks to operate globally. As the global financial system is centralised, being severed from Swift significantly complicates the process of conducting cross border payments. As payments are the heart of global finance, states have developed parallel payment systems able to circumvent sanctions by using financial technology. The purpose of this study is to uncover the significance of weaponising financial infrastructure in correlation to payment systems and power dynamics, through a theoretical framework of infrastructure, global networks and weaponised interdependence. The study is based on two research questions regarding sanctions in relation to power and technology and based on two documents published by actors on different sides of the sanctioned spectrum, Russia and the IMF. The study is conducted through the analytical framework of thematic analysis, where themes of independent infrastructure, fragmentation, settlement and crypto assets were identified. The results and analysis points at global geopolitical changes of fragmentation and the emergence of blocs following sanctions, vulnerability and asymmetrical power dynamics in financial networks where centralised actors use "chokepoint" effects on interdependent actors, and both financial infrastructure and the financial technology facilitating it being the most important tools of power. Results further point at development of domestic financial infrastructure having a wide range of global implications.

Keywords: Financial infrastructure, economic sanctions, Swift, payment systems, cross border payments, financial networks

1 | Introduction

Payments infrastructure. While often neglected in economics[1] and global political economy (GPE), its significance is critical to any state as it facilitates everyday life and the exchange of value covering all purchases, services[2] and financial assets by governments, businesses and households.[3] In an international context, it facilitates all cross-border payments for trade, investment and remittances.[4] Understanding the significance of payments infrastructure provides clarity to why in recent years it is used as a tool of soft power, with particular emphasis as a tool in economic sanctions. Following the Russian invasion of Ukraine in 2022 the West and its allies, led by the United States (US) and the European Union (EU) imposed economic sanctions of historic scale against Moscow, eroding 30 years of post Cold War engagement. Sanctions were imposed to target the Russian financial system and "political, military and economic elite responsible for the invasion", and foreign assets estimated at €300 billion of the Russian central bank are being frozen along with the severing of several major Russian banks from the main global payment system, The Society for Worldwide Interbank Financial Telecommunication (Swift).[5] Swift is the leading provider of financial messaging services which facilitates cross-border payments, and is owned by and connecting more than 11 000 member banks operating in over 200 countries.[6] The day after Russia had been severed from Swift, Bloomberg Business published a post on social media with the headline "To punish Putin, the world turned finance into a weapon of war". And indeed, it did. President of the European Commission, Ms von der Leyen, stated the severing of Swift being an insurance for Russian banks being disconnected from the international financial system, causing harm to their ability to operate globally.[7]

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[1] Dörry, S., Robinson, G. ., Derudder, B. (2018). There is no alternative, SWIFT as infrastructure Intermediary in Global Financial Markets. Financial Geography Working Paper #22. p3

[2] Dörry, S., Robinson, G. ., Derudder, B. (2018). p5

[3] Cipriani, M., Goldberg, L.S., La Spada, G.. (2023). Financial Sanctions, SWIFT and the Architecture of the International Payment System. Journal of Economic Prospects. 37, (1). p38

[4] L. Wong & Nelson R. M. (2021). International Financial Messaging Systems. Congressional Research Service. p.1. https://sgp.fas.org/crs/row/R46843.pdf

[5] European Council. (2023). Infographic - Impact of sanctions on the Russian economy.

[6] IBM. (2022). How is Swift still relevant after five decades?.

[7] Ursula von der Leyen. (2022).

In practice, exclusion from Swift is equivalent to exclusion from the interconnected global payment infrastructure, as it prevents targeted banks from conducting international payments, both as originator and beneficiary, as transfers of foreign currencies between (two) banks requires an intermediate or a corresponding bank handling one or multiple currencies. As for reference and despite decades of globalisation of the financial system, Swift accounts for roughly 80% of global transactions and the average amount of financial messages recorded daily surpasses 40 million,[8] of which an estimate of 50% respectively 30% of transactions are made in USD and Euro.[9] While sanctioned banks still are able to conduct international payments, which in this chapter and henceforward will be used synonymously with cross-border payments, while bypassing Swift, the process is time consuming, costly and complex and lacks the standard of security provided by Swift.

The interconnectivity and volume being processed through Swift on a daily basis has made it an "integral part of the global financial system"[10] and “obligatory passage point” for international payments[11]. In the case of Swift and the sanctions of 2022, it demonstrates power dynamics and interdependence among states being directly related to control and access of technology. Swift being an obligatory passage point and the weaponization of it has brought concern to governments globally. That, combined with the acceleration of technology and digitisation of finance has and is among sanctioned, or at risk of being sanctioned, states generated engineering of parallel financial infrastructure with objectives of strengthening national sovereignty, bypassing the centralisation of an as demonstrated unreliable payments system and, arguably, circumventing sanctions. This is done through financial technology (FinTech), which is one of the main themes in this essay. Fintechs, businesses operating externally of traditional financial institutions such as incumbents, provide technology and services which can be used to bypass the centralised nature of the contemporary payments system.

While today’s global economic landscape, which is coloured by interconnectivity and technology, is not the same as that of ten or even five years ago, the objective of implementation of sanctions

[8] Swift. (2022). Swift FIN Traffic & Figures.
[9] Swift.
[10] Dörry, S., Robinson, G., Derudder, B. (2018). p4
[11] Scott, S. & Zachariadis, M. (2012). Origins and Development of SWIFT, 1973-2009. p.475

remains, to alter the behaviours of targeted states, may they be of political, economic and security related nature through the use of soft power. However, with emerging technologies the framework for how sanctions can be circumvented, changes as of the absence of regulatory framework in jurisdictions which control financial technologies may enable "loopholes" in which such circumvention can take place. Fintech can either hinder or facilitate sanctions, and sanctions may reshape the nature of FinTech as it can be used as a tool of evasion.[12] By distangeling the socio-economic structures of governance and coordination, it is possible to gain a deeper understanding of financial infrastructure and the power relations, territorial embeddedness, connectivity and proneness to technological and organisational change embedded. Further, as demonstrated through the aftermath of 2022's sanctions, the ability of technology and connectivity to reshape the global landscape by "upsetting and reshuffle long established actors, processes and relationships in and beyond finance".[13]

Deriving from theories on infrastructure, weaponized interdependence and network theory, I aim to investigate the correlation between sanctions, payment systems and power. My study is based on the analysis of two documents, IMF's Global Financial Stability Report from April 2022 and the brief of the 2022 Annual Bank Report published by the Bank of Russia. As one of the objectives of economic sanctions, flow of funds will indeed be altered when imposed. This essay however aims to understand *how* the flow of funds can be altered through technology.

The essay is structured as follows; In the next chapter (2) I will present the purpose of the study and the research questions along with short overviews of payments, economic sanctions and Fintech and payments. Academic relevance (3) and limitations and delimitations (4) follow. Moving on to chapter (5), I present previous research and in chapter (6) theoretical framework, which will be defined and discussed. The theoretical framework is divided in three sections, addressing *financial infrastructure*, *global networks* and *weaponised interdependence.* The selection of theory is carefully chosen with the purpose and research questions of this essay in mind, to address the relation between sanctions, payments and power dynamics. In chapter (7) I address

[12] M. A. Alnaimat, N. Rudyk, Ahmed A. Al-Naimi, A. Panchenko, I. Turski. (2023). p.684
[13] Dörry, S., Robinson, G. ., Derudder, B. (2018). p2-3

method and methodology along with material and discuss validity, reliability and shortcomings of the study. chapter (8) presents results followed by chapter (9) which invites the reader for analysis and discussion. Finally, chapter (10) presents conclusions and chapter (11) recommendations for future studies.

2 | Purpose and research questions

The purpose of this thesis is to investigate the correlation and significance of weaponizing financial infrastructure and its effects on power dynamics and financial infrastructure through a qualitative approach of thematic analysis. The study will be addressed and carried out through the following questions;

- **How are sanctions redefining the correlation between payment systems and power?**
- **How is FinTech used to navigate through the impact of sanctions?**

It could be argued that the two questions could be completely separated in the sense of being adequate enough to be the primary focus on an essay each of their own. I however argue differently. Fintech facilitating payments has become so prominent in the sphere of finance that it could be argued that they indeed are coming to be inseparable. This is demonstrated in the upcoming section "A short overview of FinTech and finance", where I point on the problematic nature of banks and the merging with FinTechs as imperative in a time of digitisation and technological advancement.

The research questions will be answered through a thematic analysis of two documents, one published by Bank of Russia and the other published by the International Monetary Fund (IMF). The document of Bank of Russia is a brief of their annual report of the year 2022 and is published in 2023. The document of the IMF is their Global Financial Stability Report published in April 2022. In addition to the analytical framework I am using three theoretical concepts. Firstly, infrastructure, which argues for financial infrastructure being actual infrastructure, crucial for states and embedded with power. Secondly, network theory which examines the nature of global networks applied to financial infrastructure and finally, weaponized interdependence. The concept

of weaponized interdependence derives from network theory and how actors which control critical networks can weaponise these by using "panopticon" and/or "chokepoint" effects. Given the essence of this essay, which is weaponization of financial infrastructure which in the particular case of the sanctions of 2022 refers to Swift and the effect of it with particular emphasis on the technological aspect of infrastructure facilitating payments, I deem these concepts as suitable.

To provide the reader a better understanding of economic sanctions and their significance in a technology driven society, the role of FinTech in payments and how payments are conducted will be presented below.

2.1 | A short overview of payments

Cash, card, credit, debit. Most of us will conduct payments of some sort on a daily basis, but do we know the technological procedure enabling funds to move from one account to another? As payments are central to this essay, it is of importance to understand the process of how a payment is conducted. Moving towards a cashless society, this section will account for digital payments in *fiat money*. Fiat are the funds which would be found in regular bank accounts, i.e. money which is issued by governments and which are not backed by physical commodities but are guaranteed by the government as legal tender.

Domestic and international transactions are conducted differently, and international transactions are of a more complicated nature. As for the sake of maintaining the focus of this essay, the process of international payments will be demonstrated. While an international transaction can be conducted either through bank transfer, credit card, e-wallets or other alternative payment methods, the payer and recipient will always be located in two separate countries or regions, hence international payments being referred to as *cross-border* payments. The easiest way for a payment to be carried out is by two banks, the bank of the payer (bank A) and the bank of the recipient (bank B), having a direct relationship with one another. Such a relation could be demonstrated by bank A holding an account in bank B. When there is a direct relation between bank A and bank B, a financial message containing information about the transaction needs to be sent between A and B in order for the payment to be completed. Now, that is the role of Swift. Swift carries (financial)

messages between financial institutions, not the funds themselves. For money to move from A to B, be it domestically or internationally, between one bank or multiple, there is always a message containing instructions for how the money is ought to be moved.

When there is no direct relationship between bank A and bank B, the route becomes slightly more complex as an intermediate in form of a correspondent bank is needed. A correspondent bank is a bank which has a direct relation with both bank A and bank B and in case of a transaction between bank A and bank B receives the message from bank A before sending another message to bank B. Sometimes, there is a need for using a network of correspondent banks before the payment reaches the recipient - one, two, three correspondent banks, and between each routing stop there is a new message sent. The more correspondent banks involved in the transaction, the more expensive, time consuming and harder to trace it becomes.

The large volumes of financial messages recorded daily through Swift generate considerable amounts of data, of which i.a. The US Department of Treasury has stated as helpful in tracing financial flows and combating illicit financing. Swift itself is, through cooperation with a number of authorities and international organisations working to combat illicit financial activities.[14]

2.2 | A short history of economic sanctions

Russia is not the first state to be excluded from global payments infrastructure. In the last couple of decades, the West with particular emphasis on the US, have used or attempted to use sanctions of a particular kind, aiming to restrict access to infrastructure and institutions facilitating international payments.[15] The weaponization of Swift started in 2004, after 13 years of several economic sanctions had been imposed by the West on Myanmar for violation of human rights and civic rights by the ruling military junta. Human rights organisations like Human Rights Watch did at this time urge Swift to remove banks owned by the junta from the system, pointing at the junta being able to use the network for evading economic sanctions. Swift did, however, in the case of Myanmar refuse

[14] U.S. Department of the Treasury. (2006). "Appendix D-Fundamentals of the Funds Transfer Process," Feasibility of a CrossBorder Electronic Funds Transfer Reporting System under the Bank Secrecy Act, October 2006, p. 42., cited in Wong & Nelson.(2021). Pp.4-5.
[15] Cipriani, M., Goldberg, L.S., La Spada, G. (2023). p.32

exclusion of the banks as to remain neutral on the grounds that no EU laws were restricting Myanmar access to Swift.[16] Indeed, Swift, which is founded in Belgium and incorporated under Belgian and EU law claims to be a "neutral utility".[17] Finally, Swift resisted excluding Myanmar from the network.

Again in the late 1990"s and early 2000"s, states and international organisations imposed sanctions on Afghanistan"s ruling Taliban regime with the aim of terminating the sheltering and training of terrorists. The sanctions intensified after 2001 and the "war on terrorism", and included US monitoring of global transactions through Swift. The US treasury established a program, the "Terrorist Financing Tracking Program" - later known as the "Swift program"- through which the Office of Foreign Assets Control would issue subpoenas to the data processing centre of Swift in the US. While neither the amount nor the nature of data is known, Swift has acknowledged the initial scope of search covering the whole database of Swift.[18] The Swift Program became public only in 2006 and caused transatlantic controversy due to implications for privacy and civil liberties both in Europe and the US[19] as the US treasury received details about millions of messages, containing information about US as well as non-US citizens. After negotiation between Europe and the US, an agreement on the Swift Program was made, limiting the use of data for US authorities for counterterrorism (CT) purposes, limiting retention of data, allowing monitoring of the program by EU officials and urging Swift to increase its data protection standards to two zones of message-processing, one in Europe and one in the US.[20]

In 2012, the US passed the Iran Sanctions, Accountability and Human Rights act, which authorised the American president to impose secondary sanctions on individuals or institutions which provided messaging services to targeted financial institutions in Iran. The act included Swift, which after clearing from the EU disconnected targeted financial institutions in Iran from the network. The banks were reconnected again in 2015, as of the Nuclear Deal. However, when the

[16] Cipriani, M., Goldberg, L.S., La Spada, G.. (2023).p36
[17] Swift. (2022). Swift Sanctions FAQ.
[18] Cipriani, M., Goldberg, L.S., La Spada, G.. (2023).p37-8
[19] De Goede, M. (2012). The SWIFT Affair and the Global Politics of European Security. Journal of Common Market Studies. 50, (2). p215
[20] Cipriani, M., Goldberg, L.S., La Spada, G.. (2023).p38

US withdrew from the deal in 2018, it once again urged Swift disconnected Iranian banks - or to face US sanctions.[21] Such sanctions are deemed to have had a great impact on the network and its members globally, given the high percentage of dollars passing through it. The EU did, however, develop a parallel payment system, INSTEX, for humanitarian purposes which would facilitate payments in other currencies than dollars while bypassing Swift.[22]

2014, and Russia's first exposure of being subject to Swift sanctions following its annexation of Crimea. The West once again imposed a series of sanctions, this time on Moscow, and the European Parliament passed a resolution which urged EU members to call for exclusion of Russia from Swift. Swift objected to the resolution, once again referring to its neutrality. The effect of Russia being threatened with exclusion from Swift urged it to develop its own payment system, System for Transfer of Financial Messages (SPFS). The system is as of today operative and more than 400 banks are connected to it.[23] Although not as a direct effect of sanctions, China launched its own payment system Cross-Border Interbank Payment System (CIPS) in 2015, as to internationalise the use of the renminbi (RMB).[24] This is of interest considering the proximity of CIPS being launched and the attempt to sever Russia of Swift.

2.3 | A short overview of FinTech and payments

FinTech could in a broader sense be defined as "innovative ideas that improve financial service processes by proposing technological solutions according to different business situations, while the ideas could also lead to new business models or even new businesses".[25] While it is not a new industry, given the emergence of ATM machines and credit cards in the 1960's, it is one of the fastest growing sectors in tech. Advocates for digitalisation of financial services highlight the potential of FinTech as a contributor to financial inclusion with a higher degree of efficiency and good customer experience and reduced cost, with particular emphasis on usage of technology for financial inclusion. Meanwhile, critics are arguing technology can cause instability and

[21] Cipriani, M., Goldberg, L.S., La Spada, G.. (2023).p47
[22] Ibid. p48
[23] Ibid. p48
[24] Swift. (2016). CIPS accelerates the internationalisation of the RMB.
[25] Di Pietro, Raponi, S., Caprolu, M., Cresci, S. (2021). New Dimensions of Information Warfare. p.99

ungovernability in the financial sector while enabling pervasive surveillance of everyday finance. Nonetheless, infrastructure for international payments has not kept up to pace with growth of global economic integration, an issue primarily caused by the nature of operation within banks, as the global network of bank backed transactions is coloured by inefficiency, as in high costs, lack of transparency and slow or delayed transactions.[26] This urges banks to either merge or acquire FinTechs in order to access new products or technology instead of in-house development. Digital transformation and adaptation of new technology to enhance financial services is deemed as imperative for businesses operating in the field of financial services in order to preserve their chance of survival.[27]

Post the economic sanctions of 2022, several Fintech phenomena in relation to payments are being examined in regards to opportunity and, for some, problematic nature. When actors are being severed from Swift, it is critical to implement alternative financial infrastructure in order to maintain the flow of funds. One phenomenon of interest to consider is decentralised finance (DeFi), a financial technology built on distributed ledger technology (DLT), meaning it uses a network of independent computers (which will henceforth be referred to as nodes) to record, share and synchronise transactions of in their respective ledgers instead of keeping data centralised as in a traditional ledger. The most recognised example of a DLT is Blockchain, which caused the interest in DLT to increase after the launch of the cryptocurrency Bitcoin, which is built on Blockchain, in 2009.

Another form of digital currency, yet in its natal state, are Central Bank Digital Currencies (CBDCs). While introduced only recently, 130 countries, representing 98% of global GDP are exploring CBDCs. 64 of these are in the stages of development, pilot or launch. Since the sanctioning of Russia, wholesale CBDC development, which currently stands at 12 projects, has doubled.[28] Bank of International Settlement (BIS) is demonstrating this through the ongoing project mBridge, a collaboration between the BIS Innovation Hub Hong Kong Centre, the Hong

[26] BIS. (2022). Project mBridge: Connecting economies through CBDC. https://www.bis.org/about/bisih/topics/cbdc/mcbdc_bridge.htm
[27] Scardovi, C. (2017). Digital Transformation Financial Services.p.35
[28] Atlantic Council. (2023). Central Bank Digital Currency Tracker.

Kong Monetary Authority, the Digital Currency Institute of the People's Bank of China, the Bank of Thailand, and the Central Bank of the United Arab Emirates to connect CBDCs between economies. The infrastructure of project mBridge is built on blockchain and enables the system to bypass Swift while conducting real-time payments.[29] The launch of CBDCs has various motives which are subject to interests of each state and economy subjectively, but trends such as plummeting cash usage, the rise of privately issued digital assets (cryptocurrencies) and CBDCs as a means to stabilise and govern local payments systems in an ever globalised sphere are to be found across economies.[30] Indeed, the changing landscape of payments infrastructure, which primarily is built on DLT technology, might lead to reduced need or elimination of financial messages as new technology and innovation is able to bypass Swift.[31]

3 | Academic relevance

Engaging in FinTech is like diving into a rabbit hole in the sense that the more you research payments, the further the extent of its significance. This study is conducted within the field of Global Political Economy (GPE), a subdiscipline of International Relations (IR). There is clear academic relevance of FinTech and the phenomena of payments infrastructure in regards to GPE and IR, as it touches both upon conventional cases of study such as macro studies of the international monetary and financial systems and globalisation, but also rather niched areas such as financial messaging, financial infrastructure and financial technology. Proceeding from the point of how sanctions are being navigated by Fintech and the correlation between payment systems and power, the essay is also of relevance to security studies, including but not limited to issues such as counter terrorism, money laundering, cyber security and rogue states.

The technological aspect of this essay, which I aim to make a central point, is of both interest and importance to investigate as technology is transforming the field of finance by pushing economic activity to shift from brick and mortar to becoming a digital experience and, as this essay is pointing at, technology in finance being crucial component in a state's foundational infrastructure.

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[29] BIS. (2022). Project mBridge: Connecting economies through CBDC.
[30] McKinsey & Co. (2023). What is Central Bank Digital Currency (CBDC)?
[31] Wong & Nelson. (2021). Pp.7-8.

4 | Limitations and delimitations

Due to the complexity of the subject and the vast possibility of diving into numerous aspects of it, a delimitation of this study is necessary and set as to examine the effects of sanctions on the global **payments** market. The study does not aim to examine economic effect on specific states or what effect economic sanctions have in a wider realm, but is exclusively studying global payments infrastructure. Considering the intention of adding a FinTech aspect to the essay, the study is further limited to, once again, investigating the market of payments as a matter of relevance as well as of a matter of limitation. The latter is motivated by the wide range of financial services offered by FinTechs, ranging from payments to insurance, wealth management and lending. It is further worth noting that certain technologies which might be considered separated markets can merge. In the case of this thesis, blockchain technology and phenomenas built upon it such as decentralised finance and digital currencies will be accounted for as data and discussed. In order to get an as clear overview as possible, the study is looking at a global market which further is motivated by the interconnectivity of financial infrastructure. I would like to underline this being a study on the effects on the global payments market following the severing of Russia from Swift, not a study on what effect the severing from Swift has had or is having on the Russian economy or the Russian FinTech sector.

5 | Previous research

Literature has not mapped sufficiently enough how payment infrastructure, financial flows and banking is reformed and rerouted through sanctions[32] or weaponization of existing infrastructure. While FinTech is being examined in the sphere of GPE, the reaction to do so "seems to be a bit slow".[33] This can be explained through the conception of payments and other financial technologies in the sphere of GPE to a great extent being regarded solely as the underlying architecture of finance, a foundation on which high politics are playing out.[34] Bernards and Campbell-Verduyn have identified research around global finance as revolving around international organisations with a primary focus on "exploring ideas, interests and institutions through cases".

[32] De Goede, M. (2021). Financial/security infrastructure. p.359
[33] E. Brown & D. Piroska. (2022). p.20
[34] De Goede, M. (2021). p.352

This includes but is not limited to research on regulatory response to the 2008 financial crisis and changing operations of key institutions such as the International Monetary Fund (IMF) and the World Bank. However, there seems to be a relative absence of scholarship concerning technological emergence and change in finance. It has been remarked that the work of GPE scholars on the specific subject of FinTech is "more likely", when found, to be found outside of what could be considered "core" journals on GPE. The problematic nature of GPE scholarship on emerging/technologies in finance is motivated by a number of areas of increasing concern to regulators, businesses in financial services and the public at large being disregarded.[35]

Nonetheless, there are constructivist scholars in GPE and other disciplines that consider technology as a social phenomena which is underpinned by ideologies and ideas with power to constitute the interests of its users. These processes can be conceived as forms of governance by technology, as they can reshape activities and their meaning. Ideas and underpinning norms for technological phenomena give rise to regularised patterns and behaviours, and once understanding the underlying ideas and norms as a form of law, the framework within technologies can reframe, redefine and reconstitute activities of social actors and social processes underpinning global governance. As cited in Campbell-Verduyn, specific arrangements and architectures of technological phenomena such as the Internet, are regarded as crucial "arrangements of power" with key implications for "what is possible". In contrast to the constructivist approach to technology, rationalist approaches to technology assume technology as tools for advancing predetermined self interest of actors, as they allow certain actors to exercise power in zero-sum games in which winners equal losers are generated. This debate engages GPE in traditional concerns of how specific technologies are (or are not) adopted and for whom.[36] Proceeding from such a standpoint, it is assumed that emerging technologies are enhancing the capacities of global governance by enabling "a wide range of state and non-state actors to acquire new interaction capacities thereby becoming more effective and influential players on the global stage".[37] Deriving from the understanding of FinTech being a form of infrastructure, it can confer, extend and enable

[35] Bernards & Campbell-Verdyun. (2018). p.774
[36] Campbell-Verduyn. (2017).p.8-9
[37] Fritsch. (2014). p.120. Cited in Campbell-Verduyn. (2017). p.9

(new) forms of governance. As earlier touched upon, the nature of international payments is different than that of domestic ones and has thus given rise to intermediaries with power to dictate the conditions of the former. The dependence of these intermediaries has generated specific power dynamics, which in the past have been dominated by traditional banks but as of their weakened position in finance and the increasingly growing share of FinTechs penetrating the sector is ought to undergo change.[38] Such power dynamics are built around the concept of *what* money is, and its value.

Investigating power dynamics through money can be done by looking at money as an objective in a private-public relationship, where it is a "constant struggle" between three kinds of actors; governments, the people/taxpayers and rentiers and banks.[39] What facilitates the execution of this private-public relationship is financial infrastructure, ensuring governmental guarantees provided by nation states in their own currency areas are not mere promises as it links governmental guarantees to daily payments in commercial bank money. However, the foundation which links payments with the nation state in the sense of guarantees does not exist on a global scale, making international payments different from domestic payments. In fact, global payments infrastructure has only occasionally been provided exclusively by the nation state and instead relies on public and private actors. Such an arrangement working can be explained by looking at payment infrastructure as a "club good"[40] in which actors which do not pay can be excluded. The banks which this "club" consists of are, however, deeply dependent on private and state actors to monitor payments infrastructure along with infrastructure for settlements as it connects privately provided infrastructure. The effect, as the need for guarantees remains, lies in the development of powerful intermediaries in the industry of global payments which are able to dictate the conditions of international payments[41], i.e Swift.

[38] B. Brandl & L. Dietrich. (2023). The Exclusive nature of global payments infrastructures: the significance of major banks and the role of tech-driven companies. p.536
[39] B. Brandl & L. Dietrich. (2023). p.536
[40] Samuelson. (1954). Cited in B. Brandl & L. Dietrich. (2023). The Exclusive nature of global payments infrastructures: the significance of major banks and the role of tech-driven companies. p.542
[41] B. Brandl & L. Dietrich. (2023). p.536

Keeping in mind that payments infrastructure remains as unprovided solely by the nation state, weaponizing such infrastructure and Swift in particular has urged states globally to establish their own financial infrastructure. This can, as in the introductory chapter explained, be seen in i.e. Russia. While, as of 2022, none of these systems have been comparable in either size or global reach to Swift, they have provided states with "expertise" in the underlying technology and acted as a "back up" system in case of facing sanctions and/being excluded from the global network. Other times, as in the case with China and its CIPS system, the purpose of establishing national payments infrastructure can be found outside the framework of eventual sanctions. Both SPFS and CIPS use the Swift standard syntax for financial messaging and CIPS, which according to available data is the larger system of the two, did in January 2022 have 1280 financial institutions connected to it from over 50 countries. [42]

While DeFi can generate increased financial inclusion, it is being criticised as a tool for rogue actors and in the case of economic sanctions, its ability to circumvent them.[43] Severing actors, or in the absence of centralised networks such as Swift, brings the question of what leverage in regards to sanctions states will have over others. One of the answers would be that of blockchain, which allows for transactions to be conducted without being censored by intermediaries like Swift. The nature of blockchain further complicates the ability to intercept payments between rogue[44], sanctioned and/or adversary actors. Currently, regulation of blockchain based finance is being "fast tracked" but remains unimplemented. Lack of regulation is particularly obvious in the sphere of cryptocurrencies, which have been used as means of to a certain degree evading economic sanctions. Indeed, both North Korea and Russia have used cryptocurrencies to bypass sanctions and, additionally, Russia is the third largest country globally for Bitcoin mining[45]. Substituting national, and other, currencies with crypto is however unlikely because of the high risk of holding such currencies. The crypto market is yet one prone to speculation and rapid fluctuation in value,

[42] Cipriani, M., Goldberg, L.S., La Spada, G.. (2023). Pp.48-9

[43] Dicaprio, A. (2022). What do sanctions mean for the future of decentralised finance? https://www.weforum.org/agenda/2022/07/sanctions-future-of-decentralized-finance/

[44] Dicaprio, A. (2022).

[45] Authors note: Mining in FinTech and finance refers to the process of verifying new units of cryptocurrencies and verifying new transactions. Cryptocurrencies are mined through the use of computers and specific software which solves mathematical problems.

increasing the risk of high risk weighting. However, if payments in cryptocurrency will be a standard payment method in the future, the structure for economic sanctions needs to be reconsidered as cryptocurrencies are making it less effective. Regulated exchanges of cryptocurrency are currently limiting transactions with sanctioned actors, but for future regulation governments might have to limit or restrict certain actors and/or transactions.[46] Further, on the topic of digital currencies, there are two considerations of significance to take to account while considering sanctions and payments. One, the potential to reduce the burden of physical cash in times of crisis. Digital currencies such as CBDCs could prevent the need for citizens of targeted economies to withdraw their assets by enabling instant access to holdings digitally. This would, however, require CBDC to be available offline. As an issuer would control its currency, CBDCs held in foreign assets could be directly controlled and frozen in case of sanctions. It is argued that such control would make the process of sanctioning an "rogue" actor faster and wider reaching.[47]

6 | Theoretical framework

This chapter presents the theoretical framework of this thesis and consists of concepts of relevant technologies and concepts which are used to address the research questions. The chosen theory will be defined and discussed in order to provide the reader a theoretical standpoint on which the analysis will be conducted.

6.1 | Financial infrastructure

Financial technology is much regarded as a mere underlying foundation on which high politics are played out. This conception should, however, be reconsidered. Recent scholarship urges financial technology to be regarded as *infrastructure*, and not a "passive and neutral vehicle for calculated political agendas" as infrastructures provide ground on which political opportunities are shaped. The significance of financial infrastructure could, in fact, be considered as critical to nation states as to that of energy, water and food supply, agriculture and healthcare and is thus closely linked to regulation.[48] It is argued that infrastructure in finance has agency, due to the essence of payments,

[46] Dicaprio, A. (2022).
[47] Dicaprio, A. (2022).
[48] B. Brandl & L. Dietrich. (2023). p.537

clearance and settlement in the global financial market and thus its embeddedness in inequalities and geographical dis/connectivities. As cited in de Goede, “technology is much more than a resource that can be possessed like gold. It also has the capacity to structure human activities”.[49] Now, what is infrastructure? In order to explore this concept further I am using five characteristics of infrastructure developed by Bernards and Campbell-Verduyn.

- Facilitation: Infrastructures are not autonomous in the sense of doing anything, but facilitate other activities.
- Openness: Facilitation of infrastructure is to a large extent done through routinisation and standardisation of core processes, meaning they "do not have to be reinvented each time or assembled for each task".[50] As a result, infrastructure is "open" for a greater extent of actors and users to facilitate from, not only those who assembled them.
- Durability: Infrastructures are time persistent and constitute a foundation on which further development is integrated.
- Centrality: Infrastructures shape operation of core functions.
- Obscurity: Infrastructures involve large technical systems operating primarily in the background and can be "black boxed" by their users.

Keeping these characteristics in mind while regarding financial technology as infrastructure inscribed with functions and constraints operating as forms of regulation which incarnates jurisdiction, financial technology indeed becomes a tool of power and/or an agency of power. Financial infrastructure can be understood as a combination of emerging and existing social and technological systems in which basic yet crucial functions are carried out but tend to be taken for granted. In regards to payments, such infrastructure includes systems in which risk is assessed, price agreed and payments settled.[51] Such structuring is demonstrated through the direction of flows, enablement of functionalities and interactions, as financial technology ultimately facilities connections. The significance of payment technologies thus becomes clear when studying the

[49] Campbell Verduyn & Porter. (2019). p.78, in M. de Goede. (20210. p.354
[50] Star. (1999). p.381. Cited in Bernards & Campbell-Verduyn. (2019). p.777
[51] Bernards & Campbell-Verdyun. (2019). p.776

effects of sanctions, as they deprive citizens and companies infrastructurally from conducting payments.[52]

Bernards and Campbell-Verduyn argue the benefits of examining financial technology as infrastructure for two reasons. Firstly, because of the way FinTech changes background functions and thus how payments are carried out. By examining how technology fits into wider socio-technical systems, patterns of change can be comprehended. Secondly, the potential of financial technology as an infrastructure to give rise to questions of power and politics in a debate which risks being "merely technical".[53] In fact, the role of state power in shaping patterns of technological advancement and its consequences as well as the correlation between technological advancement and shifts of power in the global political economy cannot be overlooked. Technology is not an external driver of social, political and economic change, but shaped by politics and governance.[54]

Besides sanctions, there are two motivations for development of parallel payment systems. One, the inefficiency of already existing systems. This touches upon problems colouring conventional banking and the system(s) these banks rely on. Secondly, the need of diversifying payments infrastructure as of its centralised and for many actors unreliable nature. Severing Russia from Swift demonstrates payments infrastructure as a diplomatic, or violent, tool and brings questions of urging diversification in the field to surface.

6.2 | Global networks

In this essay, global networks refers to interconnectivity and exchange, be it economical, informational or physical, which has altered domestic economies due to increasing interconnectivity to actors and phenomena beyond the state's borders. Networks can be described through network theory, in which the basis of a network consists two elements: "nodes", which represent actors or locations and in this essay also will be referred to as "hubs", and "ties" or "edges",

[52] Bernards & Campbell-Verdyun. (2019). p.776
[53] Bernards & Campbell-Verdyun. (2019). p.776
[54] Bernards & Campbell-Verdyun. (2019). p.774

connections between nodes which enable flow of information, resources and other forms of influence, and are assumed to carry information in two directions. Nodes are measured in degrees, meaning the number of edges connecting it to other nodes. The higher the degree of the node, the more connected it is. These nodes might be physical entities such as computers or banks, and the patterns of nodes and edges between them demonstrates the structure of the network.[55]

The structure of networks is important to have a basic understanding of, as it provides insight to the nature of networks and the embedded inequality among them. Models of preferential attachment demonstrate, while networks are growing, that new nodes are more likely to attach to nodes which already are attached to many edges than those with fewer. Consequently, highly unequal distributions are likely to rise over time causing the secondary effect of the value of a service to its users increasing due to the number of already established user bases. This generates certain nodes to become more central in the network than others, and for the networks they are generating to become resistant to change and generate a "lock-in effect". Consequently, it is also hard to challenge these centralised structures as challengers not only have to present a better approach, but also need to coordinate a significant number of actors, or users, from one network to another. Thus, financial intermediaries such as banks, clearing houses and financial messaging service providers such as Swift are crucial[56] in the network of global payments as they benefit from their scale of operation and distinguished position of power in regards to the information and data such a position enables access to. Further, central nodes of these networks seem to be concentrated in advanced economies, above all in the Western world which reflects its dominance in financial networks.[57]

As to demonstrate and as for the purpose of this essay, network theory and the nature of networks can as a concrete example be demonstrated in global payments infrastructure and the dominance of Swift. Being the leading message provider for international payments, Swift has as of recent years

[55] H. Farrell & A. L. Newman. (2019). Weaponized Interdependence: How Global Economic Networks Shape State Coercion. p.50
[56] Farrell, H & Newman, A. L. (2019). p.50-1
[57] Farrell, H & Newman, A. L. (2019). p.52

carried more than 10 billion messages annually while covering 4 billion accounts.[58] It is, however, problematic in a number of ways. The very nature of Swift is coloured by its emergence and the political climate in the 1970's, which still paves direction for internal structure of the organisation and its connectivity. While identifying itself as a neutral utility, routes, hubs and dis/connections are embedded in its infrastructure. A study from 2013 mapping routes of Swift found large parts of the globe being poorly connected and dependent on specific hubs, affecting access and financial inclusion. De Goede presents these hubs as "choke points" for payment infrastructure, as, seen in the case of Russia, access can be cut off or limited.[59] From a US perspective, as the US in recent years increasingly has turned to economic sanctions to pursue foreign policy interests[60], it is a way of enforcing sanctions to companies and financial flows, even if these bear no connection to US jurisdiction or territory.[61]

6.3 | Weaponized interdependence

Sociological and computational research on large-scale networks show complex networks creating asymmetrical network structures, in which hubs, nodes with far greater connectivity than others, are produced. Such asymmetrical networks generate potential for "weaponised interdependence", in which some state actors are able to leverage such interdependent dynamics to coerce other actors. States which have political authority over financial and/or technological hubs of international networks through which money, goods and information moves find themselves in unique positions of power and can, if they have domestic institutions and infrastructure appropriate for the purpose, weaponise networks to gather information or cut off economic and/or flows of information, exploit vulnerabilities, coerce change of policies and deter unwanted actions. States can gain advantage from weaponizing interdependence through two ways; the reliance on panopticon and chokepoint effects on networks. In the former, the architectural structure will allow one or a few central actors to observe others. Applied to financial infrastructure, actors which have physical access to or jurisdiction over previously discussed hubs are able to obtain the

[58] Swift. (2021). Swift annual review 2021
[59] Dörry et al. (2018).
[60] Wong, L. & Nelson R. M. (2021). International Financial Messaging Systems. Congressional Research Service. p.12. https://sgp.fas.org/crs/row/R46843.pdf
[61] De Goede, M. (2021). Finance/security infrastructures. p.352

information passing through these hubs. Proceeding from the point of these hubs being crucial, financial intermediaries such as Swift, other actors will find themselves in a position where it is difficult, or rather impossible, to avoid these hubs while in the case of finance communicating value. In the latter, a state can cut adversaries off from network flows, as demonstrated in the 2022 sanctions[62] or as in the case of Iran.

So far, Swift has been mentioned several times throughout this essay. As a financial messaging service, Swift is of significance to a range of security issues, including counterterrorism, non proliferation of rogue states and great power competition.[63] Financial messaging offers various levels of control to influential states, which is of significance to consider in regards to sanctions and flow of funds. The United States with its allies has adequate jurisdictional grasp and appropriate domestic institutions to put global hubs under constraint to provide it with information and to cut off actors and states from its network. Global finance can moreover be considered as vanguard of global decentralised economic networks. Thus, it is assumed that in the case of financial messaging, the U.S and its allies are able to exercise both panopticon and chokepoint effects. Some scholars do, however, suggest the existence of multiple hubs to reduce dominance of great powers such as the U.S and their ability to weaponize interdependence. It is further argued that asymmetry in power dynamics in regards to networks and interdependence is ought to reduce over time, due to "structural holes" being filled. Nonetheless, networks can have consequences in regards to distribution of power as they tend to result in specific and enduring arrangement of power imbalance. Global economic networks are wired around centralisation of exchange, where funds flow through a few and very specific intermediaries. While in the long term the nature of networks might change, they are in the short and medium term self reinforcing and resistant to efforts of disruption.[64]

Through this essay I have several times referred to weaponization of Swift. With that, I refer to weaponization as in the sense of what has been discussed in the above section of weaponised

[62] Farrell, H & Newman, A. L. . (2019). pp.54-5
[63] Farrell, H & Newman, A. L. . (2019). p.46
[64] Farrell, H. & Newman, A. L. (2019). p.48

interdependence, with specific emphasis on the chokepoint effect. The sanctions of 2022 demonstrate the asymmetrical power dynamics embedded within the networks of financial infrastructure as well as, based on the centrality of Swift, its intendedly devastating effect when used as a tool.

7 | Method and methodology

This chapter presents the research design of the essay and motivation of the chosen methods. It further invites the reader for a discussion about validity, reliability and ethical considerations and provides a reflection over my role as a researcher.

7.1 | Empirical method and material

This essay has been conducted through a qualitative approach, as of the nature of qualitative research which emphasises the word rather than quantification throughout the process of collecting and analysing data.[65] I deem such an approach as fitting for my study as of its focus on identifying *what* is being said, and applying that to a wider context.

The material used in this essay has been chosen through selective sampling, a method referring to consciously choosing material with relevance for the study and its research questions.[66] By exceeding from the research questions in regards to deem what sample would be appropriate, two reports were settled to construct the material; Bank of Russia's Work in 2022: Results in Brief, and IMF's Global Financial Stability Report April 2022: Shockwaves from the War in Ukraine Test the Financial System's Resilience. The motivation for choosing documents is the possibility which is presented in regards to both obtaining data, which in the case of this essay provides rather objective information about what ought to be examined and the ability for interpretation and contextualising in regards to the theoretical framework which has been chosen.

The Bank of Russia's brief was issued in 2022 and is summarising the results of the Bank of Russia's annual report. While the brief for rather obvious reasons indeed focuses on Russia, it

[65] Bryman, A. (2013). Samhällsvetenskapliga metoder. p.340
[66] Bryman, A. (2013). p.350

addresses measures taken and planned for by the Bank of Russia for domestic development and policy which will have global implications. It further provides insight to how sanctions have rerouted funds in Russia, with specific emphasis on the technological aspect. Meanwhile, the Global Financial Stability Report, which consists of three chapters, addresses two issues of relevance to this essay. The financial stability implications of the war in Ukraine (Chapter 1), and the growth of FinTech (Chapter 3). The material was chosen on the basis of taking technological advancement into consideration. Russia is, again, not the only country which has faced economic sanctions or been severed off Swift. It is, however, the most recent one and as the payments landscape of FinTech and finance is rapidly changing I have deemed it as the most relevant case to study. Further, the case of Russia can be considered as a catalyst for global effects in payments which we can witness today. De-dollarisation, X and rise of new currencies can all be traced back to severing Russia off Swift and the demonstration of an unreliable global payments network.

One of the shortcomings of this essay was the procedure of finding the right material to analyse. While there is an array of reports and documents provided by governments, organisations and consulting firms examining payments and FinTech, the majority seem to examine it from a rather market centred point of view. After having been reading through several reports, a recurring theme was the examination of interest rates, investment and retail trends, all which are not the focus of this essay. The other recurring theme I was able to identify was the absence of relating economic and geo-political events to last year's sanctions. As this essay seeks to examine the effect of sanctions on payments, it was important to find a document which directly addresses this issue as the work of identifying what changes in an ever dynamic area could be related to sanctions would be too overwhelming considering the limitations this essay is ought to be conducted within. While the brief did provide material which could be analysed, it is possible that the full, annual report would have provided more value as of the quest of providing answers to the research question. So is the case especially in relation to the Russian payment system SPFS and the effect of sanctions in a context which to a greater extent was global. While the full report is available on the website of Bank of Russia, it should be noted that it is published only in Russian, and as a non-Russian speaker I therefore rely on the only English document which was available in relation to the annual report, the brief.

7.2 | Analytical method

Based on my aim and research questions and the material chosen, I deemed thematic analysis as a fitting method of analysis as it is identifying, analysing and reporting patterns found in data while describing the data[67] and interpreting various aspects of the given topic.[68] A general strategy for conducting thematic analysis is generation of themes and subthemes based on chosen or generated material being read through several times.[69] This essay follows the six phase framework developed by Braun and Clarke.

An important point about thematic analysis regardings the concept of themes, and themes being embedded in the data according to some scholars.[70] Braun and Clarke argue themes not to *emerge* as them being objectively embedded in the material and dismiss the passive role the researcher in such a case would find himself in. Instead, it is argued that the role of the researcher is *active* as he identifies patterns and themes, selects which ones are of interest and reports them to the reader. While the role and subjectivity of the researcher will be further discussed in the next chapter, validity and reliability, recognising the active role of the researcher and themes indeed being derived from his understanding and interpretation of data was important for me in the choice of analytical method. This due to the research questions being open and the aim to maintain transparency. One of the critiques I want to direct towards themes being embedded and thus arguably increasingly objective in the material allows for selective sampling in the sense of selecting material where a certain, suggestively wished for, theme is obviously present. While Braun and Clarke argue there not being any ideal framework for conducting qualitative research, the important point is theoretical framework and method matching what the quest of the research is. This is to be acknowledged as decisions. Thus, thematic analysis allows for flexibility, as it can be applied across a range of theoretical and epistemological approaches.[71]

[67] V. Braun & V. Clarke. (2006). Using thematic analysis in psychology. p.79
[68] Boyatzis. (1998) in Braun & Clarke. (2006). p.79
[69] Bryman, A. (2013). p.528
[70] Singer & Hunter. (1999), Rubin & Rubin. (1995) in Braun & Clarke. (2006). p.80
[71] Braun & Clarke. (2006). p.78, 80

The steps of conducting my analysis are based on the six-phase framework developed by Braun and Clarke as follows[72];

- Familiarisation with data

I decided about using the material after having read it through in order to deem it appropriate or not. I then, while keeping the research questions and aim in mind, carefully read through the reports, each one several times, and marked everything which could be of relevance for the essay.

- Generating initial codes

While getting familiar with the material I noted patterns, some of them recurring and/or to be found in both reports and coded them.

- Searching for themes

The initial codes were grouped together under one theme each.

- Reviewing themes

Throughout the process the body of findings was altered, as some material which I found useful in the beginning of the process was not useful anymore in the final stages of the coding due to the amount of data not being substantial enough or the data not being relevant for the sim and research questions.

- Defining and naming themes

The codes which had already been themed were once again reviewed and could be refined further. This was done through developing "subthemes" under each main theme.

- Producing the report

After finalising the coding and the "Results" chapter, I analysed the themes in relation to the theoretical framework.

It could be argued that a different kind of qualitative analysis, such as a discourse analysis or content analysis or similar could have been conducted, and while that may be accurate I deem an analysis on what is being said rather than one concerning linguistics is of more relevance both to the research questions and the aim of this essay. Moreover, I suggest in order to analyse linguistics,

[72] Braun & Clarke. (2006). p.78, 87

how the data is presented, it first needs to be mapped *what* is being said, especially when a subject priorly has not been mapped sufficiently enough.

7.3 | Validity and reliability

There is an ongoing debate in the sphere of qualitative research about how relevant the terms validity and reliability are, as they seem to connotatively refer to measurements. Measurements not being the main interest of a qualitative search has urged researchers to suggest qualitative research being assessed through a framework assimilating validity and reliability to qualitative measures, without changing the meaning of the concept but to alter it in such a way that its focus shifts away from numerical data.[73] Validity in qualitative research refers to accuracy, and whether what ought to be "measured" indeed is observed, identified and measured. Reliability refers to the extent in which a study can be reproduced and, if the study is conducted by more than one researcher, the ability to agree on interpretation of the study and its results.[74] Other terms, and arguably more appropriate, which can be used instead of validity and reliability are trustworthiness and authenticity, in accordance with the qualitative framework for assessment provided by Lincoln and Guba in 1985. This framework is built upon four criteria with several sub criterias. While this study does not comply with all of them, the framework highlights shortcomings worth considering in conventional qualitative research which soon will be discussed.

In regards to validity and particularly reliability is the aspect of intersubjectivity, which might be considered as a shortcoming in this study. Intersubjectivity refers to empirical testing of reliability, where several studies of the same phenomena by different people demonstrate the same results. The reason for intersubjectivity being a potential shortcoming of the study can be motivated by: Firstly, the sanctions of 2022 being a relatively new and indeed contemporary phenomena where final effects yet are to be unveiled. Secondly, the ever changing landscape of FinTech due to rapid innovation and implementation of services and technology. And, finally, to the best of my findings, lack of scholarship merging the two. Economic sanctions are not a new phenomena but the contrary, and moreover over the last decades a frequently used such. However, finance as of its

[73] Bryman, A. (2013). p.351
[74] Mason. (1996). p.21. Cited in Bryman, A. (2013). p.352

contemporary nature is arguably still in a nascent state. Noteworthy sanctions of the past have been imposed in a financial environment much different compared to that of today, where many of the financial services and technologies enabling them not yet had been innovated. Thus, on the subject of intersubjectivity, further and future studies on the topic of sanctions and how they reroute payments might find answers different than those provided in this study, much due to and depending on the environment in global finance and technologies at given time. The same applies for the intrasubjectivity of the study, which is demonstrating the significance of a researcher's pre-understanding and its effect on validity. One same person analysing the same material at different times with the only variabel changing being the pre-understanding will indeed contribute to how the researcher is constructing his research, and what answers he will get. Therefore, I also deem it as fitting to recognise the framework of Lincoln & Guba, as they propose criticism against the application of validity and reliability in qualitative research through the motivation of there not being one objective reality or truth, but many.[75]

From a constructivist lens of research in social sciences, the aspect of validity concerns not only the research but the researcher himself. Being part of constructing your research, previous understanding and engagement in the field will determine how the research question will be answered and what the answer might be. Indeed, if a researcher cultivates himself in a broader sense about the field and the social context he is conducting research about, the probability for high validity increases.[76]

7.4 | Ethical considerations

Ethics in this research concern issues relating to the study and the researchers relationship with the study, and is built upon the principles prescribed by the Swedish Research Council. To the best of my ability, the study is designed to provide the reader with openness and objectivity, which is demonstrated by being transparent and open about the research process and its shortcomings. All steps during the process have been accounted for and are to review in detail in the sections of

[75] Bryman, A. (2013). p.354
[76] Boréus, K. & Bergström, G. (2018) *Textens mening och makt.* p.41-2

empirical and analytical methods. Finally, I take accountability for my study and the manner in which it has been carried out.[77]

8 | Results

In this chapter, the results and analysis are presented. I have organised the findings in three main themes. "Effects on domestic flow of funds", "Effects on global flow of funds", and "Financial technology", each one having one or two sub categories. This provides the reader a consistent overview of what has been done, what is ought to be done and which area is being addressed.

8.1 | Effects on domestic flow of funds

8.1.1 | Independent infrastructure

The effect sanctions have on domestic flow of funds is predominantly addressed in the brief issued by the Bank of Russia. Although the objective of this essay is to examine effects on global flow of funds, measures taken by Bank of Russia and Russian authorities aimed at the domestic financial system are of equal importance as interest to consider as it both gives an idea of what measures are ought to be expected from other states as of future events of economic sanctions and because of the global impact such domestic measures have.

Throughout the brief, the Bank of Russia several times emphasises the national infrastructure and its significance for the economy, and how *"in 2022, the Russian economy entered the phase of a structural transformation, which resulted from the unprecedented restrictions imposed on trade and finance."*. The bank points at the cruciality of national infrastructure, as "*Considering the dramatic changes in the external environment, the country's economy needs a structural transformation.*[78]

There are three main components of the national financial infrastructure which are mentioned several times, MIR, the national card system, FPS, the national payment system, and SPFS, the messaging system developed for international transactions. The bank continues "*Without any exaggeration, the national financial market infrastructure was crucial for maintaining the resistance*

[77] Vetenskapsrådet. (2023).
[78] Bank of Russia. (2022). p.4

of the financial system to the sanctions. The national payment card system established by the Bank of Russia in 2014 ensured the functioning of all payment cards in the Russian Federation despite the exit of international payment systems."[79] Previous measures taken to strengthen national infrastructure seem to have served Russia well, which also can be demonstrated through the national cards industry, where "*the exit of the international payment systems from Russia in March did not affect the functioning of their cards inside the Russian Federation.*[80] This due to cards issued by russian banks had been transferred to the National Payment Card System (NSPK) post the sanctions Russia faced in 2014.[81] In 2022, Bank of Russia reported the number of card transactions in Russia had increased by 11% along with an acceleration of MIR cards. [82] On the note of the sanctions of 2014, it should be highlighted that while Bank of Russia today is restructuring its infrastructure, measures for increasing its expansion of assets unable to be frozen through sanctions by western sanctions began already in 2014 and the then threat of being severed from Swift. Although the Bank of Russia has maintained reserves of both USD and euro as a measure to "cushion" consequences in case of financial crisis due to high liquidity and low credit risk, these assets are stored in countries issuing them and thus at risk of being blocked. Modern banking systems and systems for keeping record are designed for authorities and financial institutions of a given country being able to identify the owner of assets denominated in the national currency and able to block those assets or the assets which are kept where the owner has an account. [83]

Modern banking systems and systems for record-keeping of rights to securities are designed so that authorities and financial institutions of each particular country, normally, can identify the ultimate owner of assets denominated in the currency of this country and, if they decide to do so, can block these assets or the assets of the financial institution where the ultimate owner has the account. Assets, i.e. dollars, in USD accounts or deposits can thus be blocked by US authorities regardless of being opened inside or outside of the United States.[84] Effectively, the bank acquired assets such as

[79] Bank of Russia. (2022). p.4
[80] Bank of Russia. (2022). p.40
[81] Bank of Russia. (2022). p.40
[82] Bank of Russia. (2022). p.41
[83] Bank of Russia. (2022). p.18
[84] Bank of Russia. (2022). p.18

gold, renminbi (RMB) and foreign currency cash, assets which are less liquid and "convenient in normal conditions" but more reliable during geopolitical instability.[85]

Regarding payment systems, "*...the Bank of Russia continued to implement long-term projects for the advancement of the national payment infrastructure in order to ensure smooth and robust operation of payment systems.*"[86] Further, sanctioned incumbents in Russia "*were supported by the Financial Messaging System that became the channel for exchanging payment information for banks disconnected from the SWIFT.*"[87]

8.2 | Effects on global flow of funds

8.2.1 | Fragmentation

A recurring and explicit theme in the IMF report is fragmentation of capital markets. *"...the fragmentation of payment systems could be associated with the rise of central bank digital currency blocs. In addition, more widespread use of crypto assets in emerging markets could undermine domestic policy objectives."*[88] According to the IMF and stated in relation to fragmentation of capital markets; "*Multilateral cooperation will remain key to overcome these medium-term challenges*".[89] Such cooperation may, however, be reflected according to the new geopolitical climate where none the least Russia is restructuring its financial infrastructure while referring to "friendly" and "unfriendly" states.[90] [91] Parallel infrastructures should, however, be expected to be met with resistance. The IMF approaches the matter as *"There is a risk that measures to increase a country's resilience to sanctions could promote the development of parallel national or regional infrastructures or critical service providers*"[92]

As of date, there is a limited number of international financial message providers and they are comparably small in relation to Swift due to the difference in number of banks connected. This

[85] Bank of Russia. (2022). p.17
[86] Bank of Russia. (2022). p.40
[87] Bank of Russia. (2022). p.40
[88] IMF. (2022). p.4-5
[89] IMF. (2022). p.4-5
[90] Bank of Russia. (2022). p.46
[91] Bank of Russia. (2022). p.46
[92] IMF. (2022). p33

results in limited geographical areas being covered and reliance on central actors remaining. In case of fully operative parallel systems being brought into the network , the IMF argues the effect of it being loss of efficiency and cross-border payment compatibility which might undermine efforts to increase access to competitive, safe and efficient cross-border payments.[93]

Fragmentation could also arise in emerging payment infrastructures. Many countries are currently exploring central bank digital currencies (CBDCs) and are also looking into their use for cross-border payments. Within the G20 initiative to enhance cross-border payments there is a workstream on how CBDCs could improve cross-border payments and increase global economic integration. Efforts to increase resilience to sanctions could undermine this project, and instead lead to fragmentation as national central banks seek to establish CBDCs independent of international infrastructures. There is a risk of competing "CBDC blocs" with fragmentation across technology and design. Cross-border compatibility could work well within the bloc but have little or no compatibility with CBDCs outside of each bloc.[94]

8.2.2 | Settlement

Much related to fragmentation and pointed at throughout both the IMF report and the brief by Bank of Russia is settlement, the final step in the process of a payment. One of the changes in the above discussed multilateral cooperation is demonstrated through financial partnership and settlements, as where the Bank of Russia states, "*A top-priority task was to mitigate sanction risks in international settlements, including by switching to settlements in national currencies and independent infrastructures. To this end, the regulator started careful work to arrange a dialogue with partner countries.*"[95] As to promote settlements in national currencies, the Moscow Exchange launched trading of new currencies for rubles, including Armenian drams, Kyrhyz som, Tajic somoni, South African rand and Uzbek sums with plans to launch trading of currency pairs with UAE dirhams and Egyptian pounds. Additionally, trade of ruble and RMB increased more than 45 times in 2022 compared to 2021.[96] Further, as of January 2023, the Bank of Russia resumed

[93] IMF. (2022). p33
[94] IMF 2022 p33-4
[95] Bank of Russia. (2022). p.4
[96] Bank of Russia. (2022). p.46

operations of trading foreign currency in the internal market, settling in RMB due to sanctions on USD and Euro.[97] While the brief of Bank of Russia underlines implementation of settlement in national currencies being tied to demand from businesses and households,[98] global geopolitics should be considered as significant in regards to actors ability to "group". As pointed out in the brief, diversifying currencies from USD and currencies of advanced economies may increase the difficulty of immobilising assets if the geopolitical climate once again sours. Such assets include RMB, commodities and "potentially even crypto assets".[99] While composition of currency assets held by central banks has been arguably steady over a long period of time and the decline of USD share has remained small, the geopolitical climate and technological advancement might urge central banks to reconsider what reserves to hold and how to hold them.[100]

On the topic of settlement and currencies, IMF argues "*Fragmentation of capital markets is further related to implications for the role of the USD.*"[101] Verily, implementation of settlement in national currencies could have implications for the USD, depending on to what extent and which industries would be affected. The Russian Central Bank reports that SPFS has begun to play its role as a "safe" and "reliable" alternative to Swift, and that its extensive application "*paves the way for expanding the use of national currencies in settlements with friendly states.*"[102] Further, and as previously mentioned, Russia proceeded with diversifying its assets post the sanctions in 2014 by acquiring commodities and foreign currencies unable to be frozen.[103] This is of importance as €300 billion (approximately $330 billion[104]) of Russian foreign assets were frozen.[105] It should, however, further be noted that despite sanctions it has been impossible for Russia to stop storing reserves in USD in euros due to the domination of such in international payments and actively being used in the Russian economy and its financial system. Obligations of exporters and importers under foreign trade contracts, business and government liabilities on loans and debt securities, foreign currency

[97] Bank of Russia. (2022). p.18
[98] Bank of Russia. (2022). p.46
[99] IMF. (2022). p33
[100] IMF. (2022). p33
[101] IMF. (2022). p.4-5
[102] Bank of Russia. (2022). p.43
[103] Bank of Russia. (2022). p.17
[104] Authors note: Exchange rate 1 euro = 1.10 USD. Converted on 13/8 2023
[105] European Council. (2023). Infographic - Impact of sanctions on the Russian economy. https://www.consilium.europa.eu/en/infographics/impact-sanctions-russian-economy/

savings of households and foreign currency accounts and deposits of businesses have been denominated in USD and euro.[106] Now, the real question is *how* significant these implications are for the USD, as that determines both domestic and global effects following.

8.3 | Financial technology

One of the objectives of this essay has been to frame what role FinTech plays in regards to sanctions. Although the results which have already been touched upon are related to financial technologies, directly or indirectly, this chapter examines crypto assets.

8.3.1 | Crypto assets

One of the main criticisms of the IMF is while FinTech is able to support inclusive growth by strengthening competition, financial development and inclusion, the "*the rapid growth of risky business segments can be a cause of concern for financial stability*", and motivates its concern with FinTechs being inadequately regulated.[107] Inadequate regulation is a matter of concern in arguably specific regards to crypto assets, which the overall usage of has increased significantly following the sanctions.[108] We have already touched upon the challenges argued by the IMF regarding fragmentation, and these are further developed in the context of regulation of sanctions and measures of capital flow management and how such measures require intermediaries to verify the identities of transaction parties, payer and payee. The challenge addressed is that crypto "ecosystems"[109] could circumvent such requirements through several means, including but not limited to; Firstly, through the use of exchanges and other providers of crypto assets which are noncompliant with sanctions and/or measures of capital flow. Secondly, inadequate implementation of due diligence procedures by providers of crypto assets and, lastly, usage of technology and platforms providing such services increasing. While major exchanges have frozen accounts on sanctioned subjects, transaction volumes and flows may shift to alternative platforms offering transactions of its users greater anonymity. The IMF continues, "Regulators in the United States and United Kingdom, among others, have urged firms in their jurisdictions, including the

[106] Bank of Russia. (2022). p.18
[107] IMF. (2022). p.13
[108] IMF. (2022). p.27
[109] IMF. (2022). p.28

crypto asset sector, to increase vigilance with regard to potential Russian sanction evasion attempts."[110] Indeed, policymakers are urged to develop comprehensive global standards for crypto assets, their activity and the risk. The IMF argues "*A more robust oversight of FinTech firms and decentralized finance...platforms is needed to take advantage of their benefits while mitigating their risks"*.[111] How is this to be implemented? The measures suggested to *"preserve the effectiveness of capital flow management...in an environment of growing usage of crypto assets"*[112] are regulators pursuing policies which examine a wide range of implications, including the exchange of governance mechanisms, resilience of trading systems, concentration of risk and trading transparency.[113]

Further, it is suggested that sanctioned states over time could allocate more resources towards mining in order to circumvent sanctions. The IMF suggests "*Mining for energy-intensive blockchains like Bitcoin can allow countries to monetize energy resources, some of which cannot be exported due to sanctions.*" Monetisation of mining is decentralised as it takes place on the blockchains, external to sanctions. Miners are also able to generate revenue directly from users paying them transaction fees, i.e sanctioned states. The overall size of mining revenues and the share of mining in sanctioned countries suggest, however, the extent of flows being "relatively contained" while financial integrity remains at risk.[114]

9 | Discussion

While the results chapter purely presents findings, the reader is in this chapter invited for a discussion of those in the context of the theoretical framework, infrastructure, global networks and weaponised interdependence. The chapter has been divided into two parts, each providing answers for my two research questions.

[110] IMF. (2022). p.28
[111] IMF. (2022). p.14
[112] IMF. (2022). p.14
[113] IMF. (2022) p.14
[114] IMF (2022) p.28-9

9.1 | How are sanctions redefining the correlation between payment systems and power?

Measures following the sanctions on Russia, domestic and global, have been either taken or highlighted, depending on which data is being studied. While sanctioning Russia, or any other state actor, can be motivated as a matter of securitisation, the very effects of doing so seem to be spiralling further into matters of security, from both the sides of the measures taken by the sanctioned, in this case Russia, and the "challenging", global implications of those measures. The IMF argues multilateral cooperation is the key to overcoming challenges of fragmentation, rise of CBDC blocs and usage of crypto assets.[115] The relevant question to ask here is *why* have such challenges emerged in the first place? Is it because of centralisation of financial infrastructure? Because of dependence on specific hubs in financial networks? Or, because certain actors are able to weaponise financial infrastructure through panopticon and chokepoint effects - and did it? While addressing the effects of sanctions and the potential "backlash" they might have on actors outside of the sanctioned state, should we not embrace the interest arguably right of every nation-state to ensure its sovereignty? While there indeed could arise consequences due to parallel payments systems and financial infrastructure in large, the challenges which are referred to should, however, be viewed as an effect of a system of inadequate and unreliable nature.

Payment systems are indeed related to power, because the networks which are constructing them are embedded in power due to the unequal distribution of nodes and the lock in effect which central nodes generate in their networks.[116] Severing Russia from Swift as to ensure Russian banks being disconnected from the global financial system and harming their ability to operate globally[117] is a perfect example of weaponised interdependence, where some actors leveraged the centrality of Swift for global payments in order to exploit vulnerabilities, coerce and deter unwanted policies and actions[118] of Russia. From what can be determined based on the data, both the report of the IMF and that of the Bank of Russia, is that the chokepoint effect did not cause the extent of harm which was intended. This can be explained by Russia starting to restructure its financial infrastructure already post the sanctions in 2014 and developing its own payment and messaging

[115] IMF. (2022) p.4-5
[116] Farrell, H & Newman, A.L. (2019). p.51
[117] Ursula von der Leyen. (2022).
[118] Farrell, H. & Newman, A. L. (2019). p.54-5

systems along with ensuring national payment cards to continue functioning. That in addition to the new measures which are being implemented and the global effects the sanctions have had, including states external to Russia being willing to settle in national currencies, fragmentation, increased usage of crypto and CBDC blocs, points at an interesting argument scholars have suggested. With fragmentation multiple hubs would emerge and the existence of these would reduce the dominance of great powers and their ability to weaponise interdependence. As suggested by Farrell and Newman, the asymmetrical nature of networks and the power dynamics embedded in them would reduce over time. This is referred to as "structural holes" being filled[119] and, indeed, the sanctions of 2021 and their effects might be the start of "filling" the holes and shifting the power dynamics.

There are two points of interest regarding the rise and challenge of CBDC blocs. Firstly, the ability of CBDCs to alter the dynamics of global financial networks due to their technological nature. Most of CBDCs are built on blockchain, meaning that a different kind of financial infrastructure is needed than that which is being mainstream used today. When speaking about Swift and international payments, we mainly refer to transactions of fiat or cash rather than digital currencies. While it is possible that central actors in today's financial networks develop infrastructure to cover for transactions between blocs of CBDCs, what we need to ask in such a case is what the geopolitical circumstances are. As per network theory, the lock-in theory is indeed significant and it requires a considerable amount of actors coordinating to break out of it. However, given the geopolitical climate of today where alliance and dependency on and of states are shifting, suggestively in an East/West direction given the West imposing the sanctions of 2021, it should be considered likely that, again, the landscape of global networks and its central nodes will change.

Secondly, Given fragmentation of capital markets being the new order of global finance, eventual financial blocs would change the network landscape in such a way that rather than (one) centralised node, there would be clusters containing central nodes. These, which would consist of a number of actors, would then create a network of cross-clusters by interactions with blocs external to the "local" cluster, suggestively mainly through the central node. The emergence of several nodes in the

[119] Farrell, H. & Newman, A. L. (2018). p.48

financial network could, as scholars have suggested, reduce the imbalance of power dynamics and the capability for great powers to exercise power.[120] Thus, the emergence of such dynamics should very much be expected to be met with resistance. The statement by IMF[121] is, however, yet verily valid to question, as a state and its financial infrastructure indeed has been severed from the main channel facilitating payments. Keep in mind, purchases, services and financial assets, trade, investment and remittances are all affected when an actor is severed from Swift.[122] While economic sanctions and the case of Swift might be a measure to ensure security, evading those sanctions is for those affected equally much a security measure, arguably in more than one aspect. Causing a state failing to settle payments is a chokepoint effect and has major implications, including but not limited to its economy, financial and social stability. It is a chain reaction, where financial disruption will disrupt the economy and thus the social stability. Failure in settling payments will affect investment and FDI, import, export and trade balance and local financial infrastructure of the state will change, as the behaviour of its people will change. I.e. national currencies being devalued, especially if rapid and considerable such, may urge citizens to purchase foreign currencies or commodities such as gold, creating a cycle of further devaluation which might lead to social disruption.

Disruption of national currencies leads us to another implication highlighted in the results, the USD. Another important aspect concerning power is the implications which might face the dollar, with the ultimate implications being de-dollarisation. We can already witness such attempts being promoted from two directions. By the use of national currencies for settlement, and for altering reserves away from USD. This is already taking place, although in scale which is nondisruptive for the stability of the USD. However, that might be subject to change given the direction of geopolitics and what industries would be affected. One of the motivations for choosing the Russian Central Bank brief as material despite not conducting a case study on Russia is its acceleration of de-dollarisation, which can be viewed as a catalyst for contemporary geopolitical development in regards to the USD. The US dollar is, as earlier covered, the main currency in which cross-border

[120] Farrell, H & A. L. Newman, A. L. (2019).p.48
[121] IMF. (2022) p.4-5
[122] L. Wong & Nelson R. M. (2021). p.1

payments are settled using Swift.[123] Settlement in USD is specifically significant for oil trade, which since the 1970's and regardless of what kind of petroleum product, has been denominated in USD.[124] Thus, given the centrality of the industry, a shift away from settlement of oil in USD has massive impacts on the global economy. Some state actors have already begun settling petroleum in national currencies and others, including major exporters of oil in the Middle East, are participating in discussions about the prospect of doing so.[125]

The severing of Russia is important as a principle, as it demonstrates power dynamics and vulnerability in contemporary geopolitics. It gives rise to questions of *who* is vulnerable and, consequently, how actors move forward acting in the best interest of and for the security and sovereignty of the state. Turning the perspective around from looking at states being excluded from Swift to *excluding* states from Swift, the meaning of those criteria changes as it demonstrates the significance of weaponizing financial infrastructure. Adding to that that financial infrastructure indeed should consider *infrastructure*, severing a state from something as crucial as the ability to conduct payments is a matter of security. Economic sanctions seize existing infrastructure, especially when networks are structured to be centralised and thus embedded with power. Thus, there should be a motivation for sanctioned actors or those at risk of being sanctioned to develop infrastructure capable of mitigating sanctions. By securitisation of centralisation in finance infrastructure, there could be a motivation for fragmentation of markets given parallel infrastructure facilitated by technology can provide actors independence rather than interdependence.

9.2 | How is FinTech used to navigate the impact of sanctions?

As for FinTech, the majority of the data which has been presented in the "Results" chapter is related to Fintech. Payment systems, payment cards, CBDCs, cryptocurrencies are all a product of financial technology, providing us a clue to how FinTech is used to navigate the impact of

[123] Swift.
[124] Miller, S. (2022). Oil Pricing Without Dollars: Is It Possible?
[125] Kennedy, C. (2023). Saudi Arabia is Open to Discuss Non-Dollar Oil Trade Settlement.

sanctions. This section will, however, focus on the possibilities and effects of crypto assets on the global financial market.

I have already pointed at how fragmentation in specific is altering the dynamics of global networks. However, widespread usage of crypto further alters those dynamics, much due to them already being decentralised. Exceeding from Swift being used as a tool of weaponisation, and in the case of economic sanctions and severing countries from the network, cryptocurrencies could facilitate an alternative and parallel route of infrastructure, evading the risk of panopticon and the chokepoint effect in global networks through weaponised interdependence. Usage of crypto assets is not restricted to trading, but is being implemented in infrastructure facilitating daily financial activities, which will be addressed through examining the crypto ecosystem as *infrastructure*.

In the chapter for theoretical framework, infrastructure was defined by five characteristics: facilitation, openness, durability, centrality and obscurity.[126] Now, cryptocurrencies are indeed not autonomous in the sense of doing anything, but they do facilitate activities such as capital flows. Once mined (the technological process of confirming new digital currencies by solving mathematical problems), cryptos are open for facilitation to anyone, which is one of the reasons why usage of such currencies is attractive to a large and diverse demographic. Given the starting point of cryptocurrencies with Bitcoin in 2009 compared to where the industry is today, a rather solid foundation on which further development is being integrated has arguably been and is continuously being developed. The centrality of crypto is part of that development, as facilitation today allows for operation of indeed core functions. There are companies, including Microsoft[127], which accept payment in crypto and there are companies, like PayPal[128], which facilitates payment in crypto. For merchants which do not accept payment in crypto, there are "crypto cards", i.e. payment cards, which convert cryptocurrencies of the card holder to respective market currency and settle the payment in fiat. These are issued by both Visa[129] and Mastercard.[130] As for obscurity,

[126] Bernards & Campbell-Verdyun (2019). p.776
[127] Lassuyt, C. (2022).
[128] Paypal. (N.d) How to use Crypto at checkout?
[129] Perkins-Southam, T. & Saks Frankel, R. (2023).
[130] Mastercard. (N.d).

cryptocurrencies and DeFi at large rely on DLT which allows transactions to be recorded, verified and "sealed", also known as hashed. Ticking all the boxes, the crypto ecosystem should indeed be regarded as infrastructure. And if it is infrastructure, it becomes a ground on which political opportunities are shaped.[131] This is obvious in the case of recent sanctions and the efforts of mitigating them, as the crypto ecosystem has become a tool of power and agency. That also means that the "challenge" of widespread usage of crypto assets becomes more complicated. Crypto assets are, per above definition, not only an effect and an external phenomena to sanctions and the financial system. It is a whole system of its own, arguably an entity, and, as according to the data, one which is enjoying an increasing amount of attention due to the benefits and possibilities it is offering. Further, as touched upon in the beginning of this sub chapter, the crypto ecosystem is already decentralised from conventional finance, which enables it to mitigate asymmetry within the financial network.

In network theory it is difficult to challenge centralised structures due to the lock-in effect. Challengers need to present a better approach and coordinate significant numbers of users from one network to another in order to 'break out'.[132] The crypto ecosystem, however, due to already being decentralised has an advantage. There is no need to coordinate users from one network to another as the substance of fiat and crypto is different. While crypto assets might be a way to circumvent sanctions, actors outside sanctioned states, be it individuals or corporates, do not need to choose which option to use as both are available and can be used for different purposes. That is if heavy regulation is not applied. The IMF has called for regulation of the crypto sphere and Fintech at large, due to growth of risky business segments which can affect financial stability[133], with certain regards to crypto assets and their ability to disturb capital flow management[134] and overall mitigate their risks[135]. While inadequate regulation can be concerning and there are risks to it, overregulation is equally so. Putting the crypto sphere under heavy regulation would enable the panopticon

[131] B. Brandl & L. Dietrich. (2023). p.537
[132] Farrell, H & Newman, A. L. (2019). p.50-1
[133] IMF. (2022). p.13
[134] IMF. (2022). p.14
[135] IMF. (2022). p.14

and/or chokepoint effect to manifest, as it would provide certain actors information on flow of funds.[136]

DeFi has been criticised as a tool for rogue actors[137]. Severing states from crucial infrastructure does, however, leave the question of who is ought to be defined as a rogue actor open for debate. The arguably only reasonable expectation to have in today's society, which is coloured by globalisation, interdependence and technological advancement, is there being consequences while imposing sanctions of unprecedented scale.

10 | Conclusion

The purpose of this essay was to investigate the correlation and significance of weaponizing financial infrastructure and its effects on power dynamics and financial infrastructure. Now, for my first research question. Sanctions redefine the correlation between payment systems and power to who controls payment systems verily *is* in power. This is evident through both Russia's ability to mitigate sanctions by developing domestic infrastructure and by the obvious concern voiced in the IMF's report regarding emerging technologies and their effect on global finance. Controlling payment systems is equal to being, or being in control of central node/s in financial networks and thus able to leverage on interdependent dynamics. Being in control of payment systems further determines the landscape of geopolitics, as emerging blocs as an effect of fragmentation might appear as politically/regionally/religiously clustered. It could be argued that the most critical quality infrastructure and geopolitics is that of possessing the technology. Technology, demonstrated in the data as FinTech, is what determines whether the financial system is ought to be centralised, decentralised or cross-clustered. FinTech is the tool which enables actors to detach from centralised networks and develop independent infrastructure while mitigating sanctions. Thus, those who develop parallel systems and are able to operate outside of a centralised sphere are not only in a position of power but indeed a threat to already established structures. This demonstrates not only the power dynamics but also the vulnerability embedded in infrastructure.

[136] Farrell, H & Newman, A. L. . (2019). pp.54-5
[137] Dicaprio, A. (2022).

As for the second question, how FinTech is used to navigate the impact of sanctions, we can see that as good as all the data which has been presented in this essay is a product of FinTech. In regards to the sanctions of 2022, FinTech is used as a tool for long and short term mitigation of sanctions. While Russia's ability to ensure continuous functionality of payment cards might be a rather short term measure, the establishment of parallel payment systems, fragmentation of financial systems and the increased usage of crypto assets demonstrate long term measures to ensure sovereignty. The development of new payment systems, such as SPFS, lay ground for new dynamics in geopolitics, as they enable actors to group and for new alliances and agreements to be formed.

With states already developing and having established messaging systems parallel to Swift, a question which remains is how the nature of sanctions will develop and thus how power dynamics will develop, as their effectiveness will cease in case of being evaded. My recommendation for further and future studies is to widen the scope and study the effect of sanctions in a further globalised context. By considering economic infrastructure as actual infrastructure, we can also consider it in regards to sustainability, with specific emphasis put on the UN Sustainable Development Goals and the further effects of weaponisation of infrastructure. Finally, with the possibility of financial fragmentation, the role and effect DeFi might have on markets and what possibilities it might pose to actors, regulated and unregulated, should be studied.

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