



THE WAR ON CASH: THE DIGITIZATION AND PRIVATIZATION OF CASH AND A CRITICAL NEED FOR REGULATION

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Abstract

Many financial services professionals, central bankers, technologists, academics, and consumers across the world believe that we are at the dawn of a truly cashless society. In several countries, a defacto cashless society already exists. During the ongoing Covid19 pandemic, we have seen a further acceleration of the decline, and indeed refusal, of cash transactions globally. Numerous studies focus on the benefits of cashless transactions and in many instances peer reviewed papers unquestionably extol the virtues of such. The researcher contends that consumers are being nudged towards a positive evaluation of a cashless society, because despite varied sources of information, financial, technology, and government sectors are predominantly reporting its positive connotations. However, there are many downsides to cashless payments and an impending cashless society, many of which have significant and life changing consequences for consumers and economies, yet this remains very much under researched. The researcher contends that as a society, we cannot do nothing; we cannot allow cash to be digitized and privatized by stealth. We must turn our attention to the consequences of a cashless society so we may identify solutions or mitigations and open a regulatory path towards a mediated transition.

Keywords: Cash, Digitization, Privatization, Regulation

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The Emerging Global Cashless Society

Twenty four years since Worthington (1995) predicted “cash is and will remain for the foreseeable future, the primary payment media”, a significant shift has begun to emerge as consumers transition from cash to cashless payments for purchases using contactless cards, mobile payments, digital wallets, digital loyalty points, and even exchanging personal data for goods/services. Beyond the long established use of credit/debit cards, the development of contactless mobile payment mechanisms such as Apple Pay, Circle Pay, Google Pay, Samsung Pay, PayPal, Square, Tencent, Baidu, Alibaba and Zelle have provided additional contactless payment options for consumer. These global payment platforms ensure that this is not localised change, it is evident in many countries including China, Kenya, India, Nigeria, Russia, Britain, Japan, South Korean, the US, and throughout the EU, underlining the globalization, digitization and privatization of global financial payment systems as cash is sidelined.

Juniper Research predicts that by 2022, Asian countries such as Japan and South Korea will have one hundred percent contactless payment acceptance. In China, a defacto cashless society already exists as many cities and businesses refuse cash transactions (Chakravorti et al., 2016). In 2009, over two thirds of all ecommerce payments in China were cash on delivery, but by 2019, thanks in no small part to the mobile wallet wars among the BAT – Baidu, Alipay (owned by Alibaba’s Ant Financial), and WeChat Pay (owned by Tencent), mobile payments accounted for over seventy percent of all e-commerce transactions. Similarly, a study by UnionPay International and Nielsen (2018) revealed that the majority of consumers in Singapore would like the country to become a cashless society. Israel also has a strategy in place to eliminate cash from the economy (Rowe, 2017).

Evidence from African nations also shows a gradual move towards cashless economies. For several years Nigeria has been embracing e-payments in lieu of cash and cheques and instead of carrying large sums of cash, traders are now sending their money online ahead of their final market destination, by way of PostCash, AfriCash, FastCash and other cashless payments. Cash is also becoming much more of a concept than a physical entity in Nigeria (Akinola, 2012). In Kenya, over ninety percent of adults use the M-PESA mobile payment system and according to the Economist Intelligence Unit (ECI), the transactions that flow through M-PESA account for almost sixty percent of Kenya’s GDP. Somaliland, a relatively small African nation, has also heavily adopted mobile payments (Chakravorti et al., 2016).

In the European Union (EU), the rapid decline in cash payments over the last number of years is also evident. In 2015, cashless payments exceeded cash payments for the first time in the history of UK banking (Peachey, 2015) and continue to increase year on year (Achord et al., 2017). The Swedish retail payment market is rapidly moving away from using cash and the

outstanding value of cash in circulation has fallen to one percent of Swedish GDP (Skingsley, 2018). More than half of Sweden's 1,600 bank branches neither hold cash nor take cash deposits (Rowe, 2017). In September 2018, fifteen European countries, including Denmark, Croatia, Greece, Hungary, Netherlands and Russia, reported contactless in-store transactions already above fifty percent, where countries such as Poland experienced eighty percent contactless transactions year-to-date (Briggs, 2018). Ireland is a country highly exposed to new payments technologies (Core Media, 2017) and in 2016, the Banking and Payments Federation of Ireland (BPFI, 2016) reported that the value of debit card payments made by Irish consumers exceeded the value of ATM cash withdrawals for the first time in its history. In 2017, the Bank of Ireland reported that the number of contactless payments made by their customers increased by more than 140% year on year (BPFI, 2018). By 2020, the value of ATM cash withdrawals had fallen on a continual year-on-year basis since 2016 (BPFI, 2020a). A nationwide study in Ireland revealed that sixty percent of Irish people across all generations believe Ireland will become cashless, with forty-six percent believing this will happen by 2030. The study also found high levels of awareness and willingness to use new payment technologies with mobile wallets and peer-to-peer payment technologies being adopted first by millennials (Core Media, 2017).

However, once new payment technologies and methods become widespread, it is becoming abundantly clear, that consumers will no longer have the choice between cash or card (Sajter, 2013; Rogoff, 2014; Achord et al., 2017; Doyle, 2017; Gurdus, 2017; Rowe, 2017; Malhorta 2018; Scott, 2018; Skingsley, 2018; BEUC, 2019; Ericksson and Sandhill, 2019; Fatima and Ahmed, 2019). In this event, businesses will have no choice but to follow suit and engage with privately owned payment platforms such as Apple and Google Pay. Furthermore, consumers will have to adopt a branded mobile wallet, loyalty points or indeed personal data to make payments. Furthermore, a cashless society could result in financial and social exclusion of all those who are excluded from the digital society; lack of an alternative to digital payments and limited consumer choice; complete loss of personal privacy, since a cashless society is a fully traceable society; full dominance of the payments environment by the commercial sector; and an increased vulnerability of payment systems to failures or cyberattacks (BEUC, 2019).

Dunwoodie and Myers (1999) outline significant barriers to a cashless society post EFTPOS implementation suggesting sub-\$2 transactions, universal and mobile payments, and social issues about anonymity of payments, privacy and security must be addressed before a cashless society could prevail. Concerns about privacy, anonymity, regulation, trust and control were also raised by several studies (Ondrus et al. 2009; Ondrus and Lyytinen 2011). However, it appears that issues with regard to anonymity and privacy in a cashless society are a still a secondary concern, overshadowed by commercial interests and regulatory shortcomings.

Numerous studies exist which focus on the benefits of a cashless society and in many instances peer reviewed papers unquestionably extol the virtues of such (Varshney and Vetter 2002; Bauer et al. 2005; Leppäniemi and Karjaluoto 2005; Gao and Küpper 2006; Hsu and Kulviwat 2006; Jayasingh and Eze 2009; Goldman 2010; O'Reilly and Duane, 2010; Andreev et al., 2011; O'Reilly et al. 2012; Duane et al., 2014).

However, there are many downsides to cashless payments and a cashless society, many of which have significant and life changing consequences for consumers and society, yet this remains very much under researched. Perhaps now, given the dramatic decline in the use of cash for financial transactions, especially during the Covid-19 pandemic, it is time to seriously question Worthington's (1995) second prediction, that "as for the totally cashless society, this is extremely unlikely". The purpose of this paper is to stimulate discussion and to call for future research to focus on identifying solutions or mitigations and open a regulatory path towards a mediated transition to a cashless society. However, first this paper explores the driving forces behind cashless payments and a cashless society before identifying the potential negative effects.

The War on Cash: The Driving Forces

At Davos 2016, Dan Schulman, Chief Executive Officer of PayPal, first publicly declared that there is a "war on cash" (Davos, 2016; Gurdus, 2017). At the same fora, John Cryan, former Co-Chief Executive Officer of Deutsche Bank Germany, and Christine Lagarde, the former Managing Director of the International Monetary Fund (IMF) and now President of the European Central Bank (ECB), conceded that it is likely that cash will not exist in ten years (Davos, 2016).

According to Sajter, (2013), the cashless society is marketed and promoted intensely by the parties most interested in its emergence. It is driven by the commercial interests of large financial corporations including Visa, MasterCard, American Express, and global banking institutions driven by cost cutting at the cold face of consumer retail banking and the significant commercial potential of data captured from every-day transactions which were once the domain of physical cash. Multinational technology corporations such as Apple, Google, PayPal, Amazon and Facebook are also determined to dominate the cashless society, promoting their own versions of cashless payments.

Together these corporations endeavour to persuade public opinion that cash is an outdated payment method, involves high societal costs, and is mainly used for money laundering and terrorism purposes. Some of these arguments are plausible – the cost of cash handling (transportation, storage, security measures) can be further optimized (BEUC, 2019).

Under the banner of keywords such as convenience, confidence, security, protection, safety, cutting edge technology, and international acceptance (American Express, 2020), contactless debit and credit cards and mobile payments are becoming increasingly pervasive methods of cashless payments and consequently heralding the phasing out of cash based transactions. The U.S. mobile payment market increased forty-one percent from \$69.8 billion in 2018 to \$98.8 billion in 2019 (Kohan, 2020). According to the Boston Consulting Group, by 2023, the FinTech industry expects to double the \$1 trillion it takes in fees from handling e- payments. In addition to those fees, there is a vast industry in collating data on our spending habits which is very difficult to collect when we spend cash, but very easy when we use cards and mobile phones due to its traceability (BEUC, 2019; Clark, 2020;). The reality of the situation is that financial and technological corporations are the main beneficiaries of a society without cash - they are at the origin of this movement, and in some countries, they even create pseudo consumer associations for the promotion of cashless society (BEUC, 2019).

Commercial banks are doing their best to promote a cashless society by driving up the cost of counter services, shutting down branches, and drastically reducing counter service opening hours. A survey by the UK Consumers Association in 2018 estimated banks and building societies had closed or had plans to close 757 branches (Quinn, 2019). Nearly 3,000 bank branches have closed across the UK since 2015 and ATMs disappeared at a rate of 500 a month in the first half of 2018, a six-fold increase since 2017 (PSR, 2019; Tims, 2018). Santander Bank announced the closure of 140 of 754 branches in January 2019 (Quinn, 2019). More than 130 communities, many of them in poor areas, now have no ATM and the 2.7 million Britons who rely entirely on cash are being increasingly shut out of essential services (Tims, 2018). There is also strong evidence that by manipulating the interchange fee associated with ATMs making them less and less profitable for banks (BEUC, 2019). For example, Sweden has the lowest interchange fee for ATMs and the lowest number of ATMs per inhabitant. Most ATMs in UK are managed by a single company called LINK. In 2018, LINK decreased the amount of the interchange from 25 to 22.5 pence (BEUC, 2019; PSR, 2019). As a result, several independent ATM operators (Cardtronics, Notemachine) introduced direct fees for cash withdrawal. In addition, as the interchange fee by Visa and MasterCard is reduced, the card issuing banks threaten to leave LINK. The UK situation will probably be replicated in many other countries. A recent discussion paper by the UK Payment Systems Regulator (PSR, 2019) states that “we are working to protect the current geographic spread of free-to-use ATMs” and we are “specifically focussed on the structure of interchange fees.” That shows clearly that the number of ATMs and their geographical distribution is directly related to interchange fees. These fees for

ATMs are not regulated but decided by banks and card schemes. The decrease of interchange fees looks like a strategy to eliminate ATMs (BEUC, 2019).

The evidence from an Irish context mirrors that of the UK. A Financial Services Union (FSU) survey reveals that 129 branches in Ireland were shut between 2011 and 2018 (Quinn, 2019). In 2015, the Bank of Ireland barred customers from withdrawing less than €700 in cash over the counter while from the end of 2017 one-in-three branches no longer accept cash or coins at the counter (Weston, 2017).

In January 2017, the Irish Government applied stamp duty charges of 12c for ATM cash withdrawals effectively dis-incentivising the use of cash at the behest of the financial services industry (Whelan, 2017). The Irish Central Bank, lobbied by financial services providers, has already engaged in activities to reduce cash usage including removing millions of Euro worth of coins from circulation under a “rounding initiative” since 2015; piloting the “Cork Cashes Out” campaign in 2017 to promote Cork as Ireland's first cash-free city which increased the number of contactless payments by 522% (Hearne, 2017); and, the announcement in 2018, that it would cease printing Euro banknotes (Hennessy, 2018). At a parliamentary enquiry into bank charges in April 2019, the CEO of Bank of Ireland's Retail Ireland division, described how the bank charges “one cent for our contactless transactions, ten cents for a visa debit transaction at point of sale that is not contactless, while a teller based cash transaction costs 60 cents” (McMorrow, 2019). According to the CEO of the Irish Small and Medium Enterprise Association, Irish banks are “actively discouraging” the use of cash, as charges for cash lodgments can be as high as 2% or 3%, while the cost of card transactions is significantly lower at 0.01% (O'Neill, 2020). These examples are mirrored throughout the EU and beyond, as financial services providers stealthily shift consumers to cashless transactions through the imposition of charges on cash transactions (Scott, 2018).

There are also strong global efforts to associate cash usage with crime, terrorism, and corruption. It is argued that cashless payments hinder tax evasion, building a trail for the underlying transactions, while using cash fosters tax evasion (BEUC, 2019; Immordino and Russo, 2018, Malhorta, 2018; Fatima and Ahmed, 2019). Eliminating cash is also purported to reduce the risk of robbery and corrupt payments (BEUC, 2019; Kim, 2018; Malhorta, 2018; Fatima and Ahmed, 2019; O'Neill, 2020). Indeed, Rogoff (2014) argues given the role of paper currency in facilitating tax evasion and illegal activity and given the persistent and perhaps recurring problem of the zero bound on nominal interest rates, it is appropriate to consider the costs and benefits of a more proactive strategy for phasing out the use of paper currency. Rogoff (2014) contends that given relentless technological advance, embodied in everything from mobile banking to cryptocurrencies, we may already live in the twilight of the paper

currency era anyway. In 2016, under the guise of international anti-money laundering (AML) legislation, and in the context of defeating tax evasion and the financing of terrorism, the ECB President Mario Dragi announced the decommissioning of the €500 note, internally referred to as the Bin Laden, by the end of 2018, knowing full well that scrapping larger denominations makes it harder to sit on cash (Coppola, 2015; Jones, 2016). In 2016, the German Government announced plans to limit the size of cash payments, as an intended anti-terrorist move in the wake of the attacks in Paris and Brussels. In response, Bild, Germany's highest circulation newspaper published an open letter for readers to send to the then Finance Minister Wolfgang Schäuble to protest at his plans to limit cash purchases to €5,000, arguing cash meant independence from banks, technology and fees (Jones, 2016).

Somewhat simultaneously on the other side of the world, Prime Minister Narendra Modi launched the Programme "Digital India" with a vision to transform India into a digitally empowered nation, creating a cashless, paperless economy. On November 8th 2016, India initiated demonetization withdrawing the two highest notes in circulation, the 500 and 1,000 Indian rupee. This effectively removed eighty five percent of all cash notes from the economy (Girija and Nandhini, 2018). Fatima and Ahmed (2019) contend that efforts in India to create a cashless society are positive and that demonetization and government support of cashless transactions is good for economic growth. Malhorta (2018) claims that in the context of India, it facilitates risk free transactions, and that this cashless society renders the country free from the curse of corruption and less black money in circulation, while paving the way for more employment opportunities, higher living standards, and equitable growth in the economy. Similarly, Fatima and Ahmed (2019) identify the benefits of a reduction in tax evasion, universal banking, improved social welfare initiatives, reduced transaction costs, and the elimination of fake and soiled contaminated bank notes.

However, Zhu et al. (2018) found that India's demonetization resulted in economic losses for rural poor households that averaged about 15.5%. Furthermore, these arguments associating cash with crime is not acceptable as these criminal activities, as shown by the Panama Papers and the Danske bank money laundering case are possible due to the complexity of the financial circuits (BEUC, 2019). Money laundering is not necessarily based on cash. Even the European Central Bank does not accept this argument as declared last year by Yves Mersch, Member of the ECB Board: "No particular link can be established statistically between cash and criminal activities. The focus must be on the fight against crime. Cash must not be made the scapegoat" (BEUC, 2019). Similarly, Haffke et al. (2020) conclude that virtual currencies weaken the European Union's financial system and pose a serious threat when used for money laundering.

The War on Cash: Leveraging the Covid-19 Pandemic

The risks associated with supposed contaminated notes featured heavily during the Covid-19 pandemic, featured on CNN, CNBC, Forbes, WSJ, and the Financial Times. Consumers were urged to engage in cashless transactions and in many instances, cash was simply refused in retail outlets. In China and South Korea, thousands of banknotes were destroyed or disinfected to eliminate the spread of the virus (Saigal, 2020). All across the EU, lobby groups successfully lobbied governments to increase the limits on payments via contactless cards in April 2020. All of this happened, despite the fact that the World Health Organization (WHO) denied that cash and, specifically, banknotes transmit the new coronavirus COVID-19, while the European Central Bank (ECB) and other national central banks, and renowned scientific institutions also ruled out that the coronavirus spreads through banknotes. Germany's Robert Koch Institute, a global health institute, also stated that virus transmission through banknotes has no particular significance (Clark, 2020). In addition, virologists largely dismissed the idea that we are catching coronavirus from cash. WHO spokesperson Fadela Chaib went so far as to publicly state that the WHO was "misrepresented and did NOT say banknotes would transmit COVID-19, nor have we issued any warnings or statements about this", when the media stated that banknotes may be spreading COVID-19 (ESTA, 2020; O'Neill, 2020). Thus, there is a general acceptance in the scientific community that using physical money poses minimal risk (O'Neill, 2020).

The remarkably fast outcome to all of this misrepresentation was perfectly demonstrated in Britain. Cash usage in Britain halved in just a few days. This immediately led the UK ATM network Link to state that there had been a fundamental change in users' cash habits as the country's banks commit to raising the PIN-free contactless limit from £30 to £45 and that a fundamental review and potential restructuring of the country's ATM network and its business model may be necessary (FinExtra, 2020). It is remarkable how a temporary fall in cash usage results in an immediate move to change a business model and a restructuring of a country's ATM cash network. Cynics might argue, what factual evidence matters, when lobbyists have a multi-million payments industry to promote, and vast sums of money have been invested in the FinTech industry in the expectation of vast profits (Clark, 2020). The actions of the FinTech lobbyists epitomize the quote by Rahm Emanuel (2008) in a classic interview with the Wall Street Journal, "You never want a serious crisis to go to waste".

Similar to other nations, China experienced a significant decline in cash usage as people avoided physical contact during the Covid-19 pandemic. In April 2020, in the midst of the Covid-19 pandemic, China commenced a major trial of a state-run digital currency known as the e-Renminbi (e-RMB). The e-RMB is the first sovereign digital currency operated by a major

economy pegged to the national currency. According to the digital currency research institute at the People's Bank of China, the e-RMB was adopted into the monetary systems of several cities including Shenzhen, Suzhou, Chengdu, as well as a new area south of Beijing, Xiong'an, and areas that will host some of the events for the 2022 Beijing Winter Olympics. Some government employees and public servants started to receive their salaries in the digital currency from May 2020. According to government sources, a sovereign digital currency provides a functional alternative to the dollar settlement system and blunts the impact of any sanctions or threats of exclusion both at a country and company level while also facilitating integration into globally traded currency markets with a reduced risk of politically inspired disruption (Davidson, 2020).

In Ireland, the story was no different. In April 2020, the Allied Irish Bank (AIB, 2020) reported a surge in consumers using cashless payments to pay for goods and services. AIBs data shows that consumers spent 30% more per transaction using contactless on their debit cards since the limit was increased from €30 to €50 on April 1st. The data shows that the debit card is the most popular choice of in-store payment method among all age cohorts, except those under 25 where it accounts for 28% of spend. AIBs data also shows that consumers are spending more using digital wallets with average spending among Apple Pay and Google Pay users up 41% and 45% respectively. Apple Pay and Google Pay now account for 37% of all in-store transactions by those who are under 25, with the average amount this age cohort are spending in store also up 24% and 35% respectively. Customers over the age of 45 are also spending 31% more using their digital wallets. Both Apple Pay and Google Pay have a higher limit than contactless cards. AIBs data was compiled from over one million anonymized and aggregated transactions between April 1st and 12th (AIB, 2020). Similarly, in April 2020, KBC Bank Ireland reported a notable change in customer behaviour amid the Covid-19 pandemic and accelerated consumer adoption of digital products using their digital-first banking platform (KBC, 2020). KBC Bank Ireland support a range of digital wallets including Apple Pay, Google Pay, Fitbit Pay, Garmin Pay and Wena Pay. KBC Bank Ireland noted an increase of 30% in the number of new current accounts opened when compared with February, after the implementation of Covid-19 restrictions in March. Online and over the phone applications accounted for 75% of new current account openings, as people chose to bank remotely in response to the coronavirus outbreak. Rather than attribute the changes to a temporary Covid-19 pandemic related phenomenon, the bank suggests that the data reflects the changing needs of customers seeking a seamless banking experience and increased peace of mind in an otherwise uncertain environment (KBC, 2020).

In May 2020, the Bank of Ireland conducted a survey of over 400 customers (BOI, 2020a) which revealed a change in consumer habits during Covid-19. Four in ten (40%) of

those surveyed revealed they have stopped using cash, with 46% of people tapping their contactless cards rather than entering a pin. The bank noted that what was most revealing about these survey results was how quickly customers adapted to the new reality, changing behaviors and prioritizing their financial wellbeing (BOI, 2020a). The bank made no association with a decision it had made in March 2020 during the Covid-19 pandemic, to immediately close 101 bank branches across Ireland (BOI, 2020b). In a statement, the Bank of Ireland revealed it is constantly reviewing its operations and that these changes refocus the branch network to its larger locations, which enable social distancing (BOI, 2020b). In August 2020, the Bank of Ireland announced 1400 job losses with claims that demand is rising for its digital banking services (Quinn, 2020). In March 2021, the Bank of Ireland announced the permanent closure of 103 bank branches, which had temporarily closed during the Covid pandemic due to a supposed lack of demand (Quinn, 2021).

These changes are also evident in research conducted in May 2020 by the Banking and Payments Federation of Ireland (BPFI, 2020b). The study reveals that the COVID-19 pandemic is fast tracking the shift from cash to digital payments as well as accelerating the move from branch to online banking, as 92% of all adults have now used contactless payments and 76% of consumers say they are using it on at least a weekly basis. Similarly, 43% of consumers are using their smartphones in shops at least weekly, while 44% of consumers are making payments via online/mobile banking with the same frequency. Cash withdrawals fell by 56% and 63% of consumers preferred to use a card with a pin or a contactless card compared to 27% who preferred to use cash when shopping in stores. Customer interactions with bank branches also declined sharply as 77% of bank customers used online and mobile banking to access their account on at least a weekly basis compared to 12% who do so in their branch. Furthermore, 64% of those surveyed said they used their branch less than once or month or never to access their bank account. More significantly, we are seeing the increase in adoption rates right across the generations and the report concludes we can expect an acceleration in the rate of adoption of these technologies as we move into a post-COVID landscape (BPFI, 2020b).

Accord et al. (2017) conclude the move towards less use of cash around the world is in motion and happening at a rapid pace, that this direction will not alter and there is no reason to believe that it can be altered, or even if there is sufficient desire for it to be halted. The inevitable conclusion is that, in due course, cashless societies are likely to evolve; the question just arises as when this will happen and what impact will it have on society. According to BPFI Chief Executive Brian Hayes, a former Irish Fine Gael politician who served as Minister of State at the Department of Finance from 2011 to 2014, COVID-19 has resulted in a societal shift towards electronic payment options. It is likely that the changes in consumer behaviour will remain and

drive long-lasting reduction in the volumes of paper based options such as cash and cheque. The BPFI Chief Executive concludes, “the choice will always remain with the consumer” (BPFI, 2020b). However, as this discussion has clearly shown, it is hardly a choice of equals when consumers are faced with wide spread branch closures, restricted opening hours, reduced counter services, the withdrawal of physical cash denominations, financial penalties for counter and cash based transactions, the association of cash with criminal activities and tax evasion, the portrayal of cash as being dated, dirty and inconvenient, and by misleading the public by associating cash usage with transmission of a global virus pandemic. This is not about consumer choice; it has all the hallmarks of war-like propaganda which has leveraged a global pandemic to further their interests to eliminate cash, on behalf of the vested interests who stand to make enormous profits from cornering and controlling the transition from cash to cashless payments.

The War on Cash: The Negative Impacts

While previously being dismissed as just another futuristic vision (Sajter, 2013) or indeed a utopian dream (Dunwoodie and Myers, 1999), the cashless society is imagination no more. A cashless society is the final point of a steady sequence of small steps, of which many have already been taken, as cash is being expelled from modern society (Sajter, 2013). Many believed that such a substantial shift could never be performed but the rapid global decline in cash usage during the Covid-19 pandemic has greatly dispelled that belief and it has given advocates for a cashless society fresh impetus. However, this is not entirely surprising, as while much of the transition to a cashless society has been by design, in the developed world it is happening more by stealth (Achord et al., 2017).

This is contrary to warnings that digital payment systems are exposed to catastrophic failures due to cyberattacks (BEUC, 2019; Cerulus and Contiguglia, 2018); the loss of a state role in payment services (Skingsley, 2018); the privatization of payments with no public alternatives (BEUC; Quinn, 2019); the manner in which these systems can discriminate against low-income individuals, the elderly and disabled (BEUC, 2019; Cerulus and Contiguglia, 2018; Kim, 2018); the complete loss of transaction and payments privacy (BEUC, 2019; Sajter, 2013); potential fraud by payment systems providers (Peachey, 2020; RTE, 2020); the potential to restrict access to or lock people out of a payment system (Hadjicostis, 2015; Peachey, 2020; RTE, 2020), and, the inherent dangers of a transition to a cashless society by stealth (Achord et al., 2017). Furthermore, the parties best positioned to gain from the emergence of a cashless society, most often disregard (deliberately, or inadvertently – whichever is the case) its negative effects on the society as a whole, and overstate the positives (Sajter, 2013).

Sweden is frequently held up as a model for the move toward the cash-free society as a success story in cutting costs and reducing crime. Sweden's equivalent of the Big Issue has even launched a scheme with tech firm iZettle that lets sellers accept payment by card on their smartphones, examples of these schemes aimed at resolving cashless payments adoption by those digitally isolated and financially vulnerable and on the margins of society. However, Skingsley (2018), the Deputy Governor of the Central Bank of Sweden, believes that within a few years, if the current trend in cash usage continues, Sweden could find itself in a situation where cash is no longer generally accepted as a means of payment. If cash stopped working, it would leave all individuals to rely on the private sector for access to money and payment methods. It would be a historical change without precedence. This raises some crucial issues regarding the state's role in the payment market (Skingsley, 2018). This view is shared by the Governor of the Central Bank of Sweden, the Riksbank, Stefan Ingves, who warns of the dangers of rushing into a cashless society dominated by private players with no public alternative (Quinn, 2019).

Digital payment systems are vulnerable to technical outages linked to a problem of energy supply or to IT malfunctioning and cyberattacks (BEUC, 2019). Cyberattacks and indeed ransomware attacks have become more prevalent evidenced by the complete shutdown of the Colonial Pipeline in the US on foot of a cryptocurrency ransom payment (Shear et al., 2021) or indeed the catastrophic ransomware attack on the Irish health service which disabled the IT systems of every public hospital for several weeks disrupting all health service provision, leading to mass cancellations of medical procedures as patient files and medical test results were inaccessible (Department of an Taoiseach, 2021). Ewald Nowotny, Governor of the Austrian National Bank, warns that if there is an energy blackout, cash is the only surviving way of payment (Cerulus and Contiguglia, 2018). An EU wide outage of Visa services caused by a system failure linked to both debit and credit card services in June 2018, left consumers unable to pay for goods and services unless they had cash (Cerulus and Contiguglia, 2018). Tawade (2017) warns that the risks associated with cashless payments are far more diverse and severe, citing an example of where the technical prowess of Indian financial institutions came into question when debit card data was stolen by hackers. Björn Eriksson, former Head of Interpol warns it is easy for a digitized system to be shut off and that relying too heavily on cashless payment systems exposes them to catastrophic failures in the event of cyberattacks (Ericksson and Sandhill, 2019; Cerulus and Contiguglia, 2018;). Furthermore, increased levels of phishing attacks, over the air transmission interceptions, mobile banking malwares, malicious access to session tokens, outdated operating systems and non-secure network connections, malicious third-party apps, jailbroken or rooted devices, poor or lack of network connectivity, cost of

internet access, charges on cards, online transactions, smart phone affordability, lack of proper supporting service, non-tech savvy consumers and a hidden impetus encouraging people to spend more have all been identified as critical negative implications of cashless payments have all (Brahma and Dutta, 2018). While many commentators and pro-cashless society proponents laud societal and business advances in digital security, let us take note that Mr. Alf Goransson, the CEO of Sweden's biggest security firm, Securitas AB, was declared bankrupt in 2017, when unbeknownst to him, his identity had been hacked four months previous. This should not just raise questions about the massive challenges for securing data in every country, let alone a country spearheading digitisation and a cashless society, but more importantly, the overwhelming financial consequences for individuals of rising incidents of identity fraud (Rolander, 2017).

Many parts of our communities are not ready for a cashless society. Petra Hielkema, Director of Payments at the Dutch Central Bank argues that cash provides trust and vulnerable groups such as the elderly and disabled people rely on cash more than other people (Cerulus and Contiguglia, 2018). More than 25 million people in the UK would struggle in a cashless society (Sewraz, 2018) as a cashless society can discriminate against low-income individuals, and the elderly (Kim, 2018). People without bank accounts will also find themselves further marginalised and disenfranchised from the cash infrastructure that previously supported them (Scott, 2018). An examination of the impact of a cashless society in India found that the low literacy rates in rural India, along with the lack of internet access and electricity make things extremely difficult for people to adopt cashless transactions (Uma Devi, 2019; Metri and Jindappa, 2017). Similarly, in Africa, a cashless society discriminates against those with a lack of internet connectivity, intermittent electricity, low incomes and low levels of education (Akinola, 2012; Nwankwo and Eze, 2013). Fundamentalist religious beliefs are also a potential obstacle to the widespread adoption of cashless payments in Nigeria which may then adversely impact members of those communities (Akinola, 2012; Dunwoodie and Myers, 1999) and sensitization exercises for cashless adoption in Nigeria would require involvement of the clergy (Nwankwo and Eze, 2013). There are also poorly understood psychological implications about cash encouraging self-control, while paying by card or a mobile can encourage spending (Scott, 2018).

Anonymity in the 'classic' payment processes, carried through paper cash and metal coins, is vital to certain civil rights and liberties, and the vast possibilities of tracking the identity of the participants in the cashless society poses large risks (BEUC, 2019; Sajter, 2013). There is evidence that anonymity is slowly being eroded as examples of this shift can be found everywhere: the US state of Louisiana passed an Act in 2011 which completely outlaws the use

of cash in transactions for secondhand goods (Act No. 389, Regular Session, 2011, House Bill No. 195); in December 2011, Italian citizens lost the right to conduct transactions of over €1,000 in cash, while in April 2012 cash payments were banned in Spain as well, albeit with somewhat higher cap: €2,500 (Sajter, 2013); India introduced a process of demonetization in 2016, removing from circulation the two largest denominations of currency notes of INR 500 and INR 1000 (Goel, et al., 2019) and, since the 26th of January 2019, the €500 banknote is no longer been issued by central banks in the euro area (Central Bank of Ireland, 2019). Once access to physical cash is severely restricted or indeed eliminated for consumers, then the consumer also becomes powerless to control or make any decisions about access to or use of their own money, or indeed the costs associated with doing so (Ericksson and Sandhill, 2019).

This lack of control of the costs associated with a cashless society is also pertinent in the context of negative interest rates (Badkar, 2014; Rogoff, 2014; Giles, 2015; Bloomberg, 2016; Boudreau and Oanh, 2016; Martin, 2016; Soble, 2016; Accord et al. 2017; Dowd, 2017; BEUC, 2019; Ericksson and Sandhill, 2019). Since June 11th 2014, the ECB has imposed negative interest rates on bank deposits, cutting the deposit rate to -0.1%, from 0.0%, effectively charging domestic banks wishing to place deposits on hold with the ECB (Badkar, 2014). By the end of June 2016, \$10 trillion dollars of government bonds worldwide offered yields below zero and some 500 million people in a quarter of the world economies were living with negative interest rates (Martin, 2016). By June 2018, the stock of bonds with negative-yielding debt still stood at over \$8.1 trillion (Gutscher and Verma, 2018). Banks in Switzerland, Sweden, Germany, and Denmark imposed negative deposit rates, which effectively mean that consumer deposits lose value rather than earn interest. This move echoes the Bank of Japan who imposed negative interest rates on depositors in 2015, which saw significant numbers of Japanese families withdraw cash to hoard in home vaults (Soble, 2016). Perhaps it is notable that the German based Insurer Munich Re gradually withdrew over €10 million in cash and secured it in its own vaults (Suess, 2016). However, in April 2015, other signs of further creeping restrictions on attempts to withdraw cash to avoid negative interest rates being imposed on deposits became evident. A Swiss pension fund manager calculated that he could save his clients a substantial amount of cash by withdrawing cash from his fund's bank account and instead hold it in a secure vault (Coppola, 2015). His request for a withdrawal in physical cash was denied, instead being offered an electronic funds transfer (EFT) or a cheque, which could only be deposited in another bank. The Swiss National Bank (SNB) confirmed that hoarding cash to circumvent negative interest rates was not welcome and publicly instructed banks to restrict withdrawals of physical cash. By 2016, the denial by Swiss banks of physical cash withdrawals increased as external asset managers were advised to assuage the demands of non-domiciled account

holders for cash withdrawals or their longstanding business relationships with the asset managers will be terminated (Coppola, 2015). Former Bank of England (BoE) policymaker Andrew Haldane, former IMF Chief Economist Kenneth Rogoff and Gabriel Stein, a Senior Economist with Oxford Economics, predict that a drive towards cashless societies will increase the potency of central banks running negative rates suggesting that now they have tried the tool, central banks are likely to wield it (Badkar, 2014; Rogoff, 2014; Giles, 2015; Bloomberg, 2016; Boudreau and Oanh, 2016; Martin, 2016; Soble, 2016; Accord et al. 2017; Dowd, 2017; BEUC, 2019; Ericksson and Sandhill, 2019). Thus, we are increasingly living in an upside-down banking world where depositors are financially penalised for having savings through negative interest rates while they are also prevented from withdrawing large amounts in cash.

These penalties are also not just restricted to negative interest rates. In times of economic turmoil, deposit holders could be subject to financial haircuts as evidenced by the actions of the Cypriot and Greek governments. On July 29th 2013, the Cyprus Popular Bank imposed a 47.5% “haircut” on deposits exceeding €100,000 in order to stabilize the banking system (Hadjicostis, 2015). The Cypriot banking crisis meant that as part of the Bank of Cyprus bail-in, an estimated €4 billion euros was seized from depositor’s accounts in order to stabilize the banking system and exchanged for shares in the bank. However, depositors in the smaller Laiki bank while subjected to the same bail-in “haircut”, received no shares as Laiki, was “folded into Bank of Cyprus”. Among the depositors hardest hit were the pension funds belonging to employees of state-run companies. Cypriot authorities imposed restrictions on money withdrawals and transfers for all banks to prevent a run on the banks prior to announcing the bail-in (Hadjicostis, 2015). Similar events unfolded in Greece in 2015, but the outcomes had far greater and long lasting consequences for the Greek economy. The prospect of a Grexit in June 2015, led the then Greek Prime Minister Alexis Tsipras’s to call for a democratic referendum on creditors’ reform proposals after bailout talks in Brussels collapsed (Smith, 2015). Customers of Greek banks were immediately limited to €60 cash withdrawals from ATMs and Greek banks closed for two weeks as the European Central Bank refused to maintain even temporary liquidity (Hope et al., 2015). On July 5th 2015, the Greek people overwhelmingly voted by 61.31% in favour of rejecting the EU bailout proposals (Wearden and Kollwe, 2015). However, on the 13th of July, despite vigorously campaigning to reject the EU bailout proposals and despite an overwhelming democratic mandate from the people, the Prime Minister Alexis Tsipras led SYRIZA government of Greece accepted a bailout package from the ECB that contained larger pension cuts and tax increases than the one rejected by Greek voters in the referendum only eight days earlier (Maltezou and Koutantou, 2015). While many argue the reasons why the terms of this bailout were accepted, one significant reason comes to the fore:

Greeks with bank deposits stood to lose a significant proportion of their savings, if not everything, as they were unable to withdraw cash. It is clear that a cashless society would boost the risks of moral hazard, as banks and other vested interests could be given a superior and unparalleled position in the economy, with no fallback options (Sajter, 2013).

In June 2020, suspected financial fraud at the German owned Wirecard Card Solutions, which arose after an alleged €1.9 billion gap in the company's financial accounts was discovered by auditors, resulted in customers being unable to access cash held with financial apps using Wirecard technology and locked out of their accounts. This lockout also extended to customers of partner services engaged in mesh payment services including Ireland's An Post Currency Cards and the UK based U Account, Pockit, Anna Money and the business account Curve. Wirecard's CEO was arrested accused of inflating the company's financial records to make the company more attractive to investors and customers. Wirecard subsequently filed for insolvency. According to the UK's Financial Conduct Authority (FCA), customer funds are not protected, and the firms' creditors stand to lose billions of euros (Peachey, 2020; RTE, 2020).

Introducing a cashless society also risks losing accountability, responsibility and liability of policy makers towards voters and taxpayers, as they would be equipped with previously unknown levers of macro-management including those of fully automated tax collection, and the possibility of a swift imposing of new duties. Throughout the financial crisis, many EU citizens deliberately chose not to pay high taxes, as they lost confidence in the efficiency of government administration, and because they believed they were not provided with the level and quality of public sector services adequate to the level of taxation. In a cash-free economy, political elites could pursue their goals unrelatedly to potential outbursts of civil discontent, in spite of the requests of majority, and they could finance themselves by coercion (Sajter, 2013).

The War on Cash: The Challenge for Central Banks

If we don't respond to the negative effects of a cashless society then we must all consider the words of Mayer Amschel Rothschild, founder of the Rothschild banking dynasty, "give me control of a nation's money supply, and I care not who makes its laws" (Economist, 2012). These sentiments were also echoed by his grandson Lord Jacob Rothschild, who anticipated that a one-world currency named "Phoenix", will arise and replace nations' sovereign currencies (Economist, 1988). This scenario is also considered by Dunwoodie and Myers (1999) when citing Baxter's concerns of a "one world government, where every person will have a unique number" and that "without this unique number, nobody will be able to buy or sell".

In the Phoenix Zone, it is suggested that economic adjustment to shifts in relative prices would happen smoothly and automatically, as it does today between different regions within

large economies (Economist, 1988). An absence of currency risk would drive trade, investment and employment and tight constraints would be imposed on national governments. National monetary policies would not exist as the world Phoenix supply would be fixed by a new central bank, which would also control the world inflation rate. Each country could use taxes and public spending to offset temporary falls in demand, but it would have to borrow rather than print money to finance its budget deficit. With no recourse to the inflation tax, governments and their creditors would be forced to carefully judge their borrowing and lending plans. A big loss of economic sovereignty would ensure, but the trends that make the Phoenix so appealing are taking that sovereignty away in any case (Economist, 1988). While these ideas may seem fanciful to some critics, ask one question – if cash is replaced by digital payments owned and operated by a private commercial company such as Apple, rather than a central bank, what use would it have for currency rates, or indeed currencies: it just has a one-world currency – the Apple. Given that all of man's problems biblically began with one bite of an apple, perhaps the company logo is quite prophetic!

The term Central Bank Digital Currency (CBDC) is commonly used to describe electronic monetary units issued by a central bank, meaning that electronic coins and notes could replace physical coins and notes while the central bank remains as the issuer. According to the Bank for International Settlements, 66% of the central banks in the world are working on this idea. For the time being, only Canada and Singapore have decided to launch large experiments (BEUC, 2020). The Swedish Central Bank has also engaged in pilot projects for a proposed CBDC known as the e-Krona (Riksbank, 2019). However, the researcher argues that there is one significant fatal impediment to the future of Central Bank Digital Currencies (CBDC): technological companies are determined to launch their own corporate controlled currency and they will refuse to share their technical knowledge, expertise and platforms with central banks who wish to issue and control CBDCs. This is clearly possible as was evidenced by Apple and Google's refusal to share its platform for Government developed independent Covid-19 track and trace systems in the UK, France, Germany and elsewhere (Scott et al., 2020). Furthermore, the inability of Governments and the EU to deploy robust payment systems that consumers want to use is underlined by failures with respect to Germany's Girocard and France's Cartes Bancaires as their market share has collapsed over the past decade in the face of competition from commercial digital payment providers. Similarly, the Monnet Project failed in 2011 and the latest pan-European Payment System Initiative (PEPSI), renamed EPI after complaints by the US drinks group PepsiCo, is only backed by half of the eurozone countries suggesting the project lacks support. It also appears that the EU has already capitulated to the power of commercial digital payment providers as Martina Weimert, Chief Executive of the European

Payments Initiative suggests “the market share of international solutions is growing and their financial resources are much bigger than any bank’s, and the only way to free up the resources to invest in innovation is to join forces and benefit from economies of scale” (Arnold, 2021a).

Perhaps, it will be Facebook who manages to create a single world currency. Formerly known as Libra Coin, it was rebranded as Diem to disassociate itself with a negative press, but it remains completely unchanged in principle. The Diem/Libra payment system announced in 2019 and designed to facilitate domestic and low-cost international money transfers instantaneously (Murphy, 2019), will support single currency stablecoins (e.g., \approx USD, \approx EUR, and \approx GBP) and a multi-currency coin (\approx LBR). Diem/Libra Coins are fully backed by a reserve of assets made up of cash or cash equivalents and very short-term government securities. This is to ensure that people and businesses have confidence that their Diem/Libra Coins can be converted into their local currency when needed. The Diem/Libra Association is responsible for the governance of the Diem/Libra network and the development of the Diem/Libra project (FT Series, 2019). Facebook has endeavored to tightly integrate its social media services (WhatsApp, Instagram and Messenger), through the development of a unified digital infrastructure enabling “inter-operability. The possible intent is to head off the threat that these different platforms may be split up or indeed that its takeover of Instagram and WhatsApp is revoked under anti-competition law (Vaudevan, 2020). The Diem/Libra wallet will also embed in this digital infrastructure, giving Facebook an unprecedented global audience, reach and data insights on its billions of customers (Vaudevan, 2020). Facebook has suggested that Diem/Libra plans to stabilize the market by holding legal currencies as collateral. However, markets determine prices, and there is no guarantee that the prices can be controlled as intended. Although, Diem/Libra is far from broad acceptance as a world currency (Iwashita, 2020), most of its problems could be solved by simply replacing world currencies with the Diem/Libra Coin rather than pegging to their current exchange rates. A key clue to possible future intentions is that Diem/Libra plans to move to a permissionless blockchain within five years. Diem/Libra is currently marketed as a cryptocurrency with a Blockchain component (Handayani et al., 2020). However, as long as it has a central authority and it holds legal currencies as collateral and issues Diem/Libra Coin, it cannot be a decentralized structure like Bitcoin. Thus, until this occurs, it would be difficult for Diem/Libra to be realized and widely accepted as a world currency (Iwashita, 2020). Nevertheless, it has the potential to do so and thus its risks must be thoroughly assessed.

Diem/Libra has been described as a corporate-controlled supranational currency and a bold attempt by a bigtech behemoth to leverage its monopoly over digital data and platform networks in order to draw low-income and unbanked households into its web of interconnected

financial services (Vaudevan, 2020). However, Diem/Libra in the process of doing so would likely exacerbate financial fragility, global imbalances, and the already substantial financial subordination of developing countries (Vaudevan, 2020). Diem/Libra also raises serious trust issues with respect to data privacy from Facebook not only tracking and selling personal data, but tracking and selling information on every financial transaction as well. Given Facebook's history with data breaches and data misuse, including scandals such as Cambridge Analytica, and the fact that the Diem/Libra Association is composed of numerous founding members who have been involved in previous privacy scandals, it should not be overlooked by politicians and commentators (Handayani et al., 2020).

The Diem/Libra Association is more than a challenger bank. It challenges every central banks' status quo and global sovereign currencies. This has not gone entirely unnoticed by the political and banking establishments. A German central bank spokesperson said that Facebook had the potential to become a systemically critical shadow bank while the Governor of the Bank of England believes that it is central banks and not private corporations that should take the lead in this space. The Governor of Bank of France was equally critical stating that at no time should Facebook or any other private group be allowed to create its own equivalent of a national currency to give themselves the attributes of state sovereignty (Murphy, 2019; Handayani et al., 2020). The French finance officials believe a digital currency such as Diem/Libra issued by a company with hundreds of millions of customers would carry unacceptable systemic risks and it would be susceptible to money laundering and the financing of terrorism (Murphy, 2019). Similarly, the President of the US, Donald Trump, launched a stinging attack on cryptocurrencies, including Facebook's proposed Diem/Libra coin and warned that the social media network would be subject to full banking regulation (Murphy, 2019). After all, Facebook itself, describes Diem/Libra as "The Payment System. The Blockchain. The Reserve. The Association" (Diem, 2021) which logically suggests it's aspirations in banking and thus it should be subject to full banking regulations.

In this context, China's launch of the e-RMB (E-Yuan) in 2020 is also an interesting development. In 2019, Mr. Xiangmin Liu chaired the first meeting of the Financial Action Task Force (FATF) of the G7 under the Chinese Presidency of the FATF, and used the occasion to vehemently oppose Facebook's attempts to launch Diem/Libra, stating the dangers of virtual currencies, cybersecurity and sovereign risks (FATF, 2019). Perhaps, these objections cloaked China's hidden agenda to launch their own sovereign digital currency as a functional alternative to the dollar settlement system. By 2021, The People's Bank of China has already established a joint venture with Swift, and it has conducted cross-border payment experiments with central banks in Hong Kong, Thailand and the UAE while running E-yuan pilot schemes in various

Chinese cities, ahead of a planned wider rollout at the Beijing Winter Olympics in 2022 (Robinson, 2021). In mid-2021, in a series of sweeping moves to regulate cryptocurrency mining and trading, China ordered banks to block crypto-related transactions and launched an investigation to identify all bank accounts facilitating cryptocurrency trading (Nutall, 2021). The impact of these regulatory moves by China throughout 2021 were quite significant as cryptocurrency prices fell significantly from their peak trading highs as many speculators departed the system and new entrants were deterred.

While the government of China may have the technological capacity to develop and manage its own CBDC, and indeed to quell the rise of cryptocurrencies using stringent regulations (Nutall, 2021; Robinson, 2021), it appears to be beyond the capacity of most countries to do so. Thus, as cashless digitized privatized payments increase exponentially in countries around the world, governments had better start to think and plan for how they will rise to the challenge of corporate-controlled supranational currencies as the evidence clearly demonstrates that they are coming!

The War on Cash: The Challenge for Consumers

One of the greatest difficulties for consumers engaging in cashless payments is that they do not understand, or they are not aware of the long-term negative consequences of their actions. Fishbein and Ajzen (2010) underscoring of the role that sources of information play in forming beliefs, inadvertently highlight one of the great shortcomings of the peer-reviewed literature - an almost complete absence of academic sources reporting empirical research of the negative consequences of a cashless society. This is particularly stark when compared with the number of academic studies extolling the virtues of digital payments, cashless payments, NFC payments, peer-to-peer payments, etc., (Varshney and Vetter 2002; Bauer et al. 2005; Leppäniemi and Karjaluoto 2005; Gao and Küpper 2006; Hsu and Kulviwat 2006; Jayasingh and Eze 2009; Goldman 2010; O'Reilly and Duane, 2010; Andreev et al., 2011; O'Reilly et al. 2012; Duane et al., 2014). Academics are almost guilty of normative isomorphism driven by the agendas of professional and occupational groups, which often then reflects in a professional community a shared vision of the future (i.e.) the world must be cashless to be progressive (DiMaggio and Powell, 1983). Similarly, academics could be accused of suffering from a collective technological utopianism (Dunwoodie and Myers, 1999) when it comes to a cashless society, as there is almost a singular shared belief that improvements in payments technology, will lead to all kinds of beneficial social and cultural changes in the context of digital payments.

Coupled with the failings of the financial services industry, technology companies, and governments to highlight the negative consequences of a cashless society, it is little wonder that

industry report after industry report overwhelmingly cites positive consumer evaluations of performing the behavior (i.e.) engaging in cashless payments, and that rapidly accelerating towards a cashless society results in positive outcomes for society. The financial services and technology sectors are only reporting positive connotations of a cashless society, as they have a vested interest in seeing vast profits from their large investments. Thus, consumers are being nudged towards a positive evaluation of a cashless society.

Louis Althusser's concept of interpellation is relevant in this context (Scott, 2018). The basic idea is you can get people to internalise beliefs by addressing them as if they already had those beliefs. Twenty years ago, nobody believed that cash was inconvenient, but everywhere we look today, we see adverts that address us as people who find cash inconvenient. The objective is to reverse-engineer a belief within us that cash is inconvenient, and that cashlessness is in our interests. However, a cashless society is not in our interest, it is in the interest of banks and payments companies. Their job is to make us believe that it is in our interest too, and they are succeeding in doing that. Only by identifying the main arguments in favour of or against a matter can we then enable different parties to address the associated emotions, identify solutions or mitigations and open a path towards a possible transition (Scott, 2018).

By impeding attempts to carry out one behavior (i.e.) pay with cash, a second behavior becomes more ingrained (i.e.) pay with digital payments. This is very evident in views previously expressed that once new payment technologies and methods become widespread, consumers will no longer have the choice between cash or card and that cash will not exist in ten years. It is also widely reported that the number of bank branches in the EU fell twenty-one percent, or 50,000 branches, between 2008 and 2018, which the European Banking Federation attributed to the popularity of online and mobile banking services (Taylor, 2018). Ultimately, the overarching aim of commercial banks is to diminish the everyday use of cash, by encouraging cashless payments for goods and services. This strategy is complemented by a reduction in the number of high street branches and the reduction of opening hours for counter based transactions, coupled with limits on daily cash withdrawals. Similarly, consumers are incentivised to pay by digital payments through discounts and loyalty schemes while being penalised for cash withdrawals through government levies and banking charges. Consequently, it is argued that there is a diminished consumer demand for cash and hence the availability of cash will contract significantly. There is a feedback loop going on here. In closing down their branches, or withdrawing their cash machines, they make it harder for me to use those services. I am much more likely to choose a digital option if the banks deliberately make it harder for me to choose a non-digital option. In behavioral economics, this is referred to as "nudging". If a

powerful institution wants to make people choose a certain thing, the best strategy is to make it difficult to choose the alternative (Scott, 2018). The nudge requires two parts. First, they must increase the inconvenience of cash, ATMs and branches. Second, they must vigorously promote the alternative. They seek to make people learn that they want digital, and then choose it (Scott, 2018). However, it is never acknowledged that increasing restrictions and disincentives to access cash severely impacts consumers use and perceptions of cash usage.

Consumers can learn from the Marxist philosopher Antonio Gramsci with regard to hegemony which is the way powerful parties condition the cultural and economic environment in such a way that their interests begin to be perceived as natural and inevitable by the general public (Scott, 2018). Nobody was on the streets shouting for digital payment 20 years ago, but increasingly it seems obvious and natural that it should take over. That belief does not come from nowhere. It is the direct result of a hegemonic project on the part of financial institutions. There is a deliberate alignment between governments and financial institutions to restrict and eliminate use of cash, and that years of subtle lobbying by the international financial industry have clearly paid off (Scott, 2018).

Table 1 summarizes the economic and societal impact of the digitization and privatization of cash.

Table 1: The Economic and Societal Impact of the Digitization and Privatization of Cash

Impact	Source
1. There could be hidden agendas by those promoting a cashless society.	Sajter, 2013; Accord et al. 2017; Scott, 2018; Murphy, 2019; BOI, 2020a; BPFi, 2020b; Clark, 2020; ESTA, 2020; Handayani et al., 2020; O'Neill, 2020; Saigal, 2020
2. It will become more expensive for consumers and businesses to use cash.	Accord et al. 2017; Scott, 2018; McMorro, 2019; O'Neill, 2020
3. Bank branches will close, consumer facing roles will significantly reduce, and digital banking charges will increase.	Accord et al. 2017; Scott, 2018; Taylor, 2018; Tims, 2018; BEUC, 2019; BPFi, 2020b; FinExtra, 2020; PSR, 2019; Quinn, 2019
4. Trust in banks can be undermined.	Accord et al. 2017; Scott, 2018; Murphy, 2019; Handayani et al., 2020; Clark, 2020; Vaudevan, 2020
5. Trust in governments can be undermined.	Economist, 1988; Accord et al. 2017; Scott, 2018; Murphy, 2019; Handayani et al., 2020; Clark, 2020; Vaudevan, 2020
6. Central bank and government control of national and international financial economics can be undermined.	Economist, 1988; Accord et al. 2017; Scott, 2018; Skingsley, 2018; Murphy, 2019; Handayani et al., 2020; Clark, 2020; Vaudevan, 2020; Arnold, 2021b
7. Financial exclusion from, and discrimination of, some members of society.	Akinola, 2012; Nwankwo and Eze, 2013; Accord et al. 2017; Metri and Jindappa, 2017; Cerulus and Contiguglia, 2018; Kim, 2018; Skingsley, 2018; BEUC, 2019; Uma Devi, 2019; Vaudevan, 2020
8. Financial haircuts can be imposed on deposit accounts.	Hadjicostis, 2015; Peachey, 2020; RTE, 2020

9. Depositors locked out of accounts for extended periods.	Coppola, 2015; Hadjicostis, 2015; Peachey, 2020; RTE, 2020
10. Loss of deposit retention taxes for governments.	Economist, 1988; Accord et al. 2017; Skingsley, 2018
11. Promotion of a society based on consumer spending rather than savings.	Brahma and Dutta, 2018; Scott, 2018; Skingsley, 2018
12. Increased societal dependencies on technology companies.	Sajter, 2013; Accord et al. 2017; Skingsley, 2018; BEUC, 2019; Ericksson and Sandhill, 2019; Murphy, 2019; Quinn, 2019; Uma Devi, 2019; Vaudevan, 2020; Arnold, 2021
13. Restriction limits placed on payments/withdrawals/transactions	Sajter, 2013; Coppola, 2015; Hadjicostis, 2015; Peachey, 2020
14. The imposition of negative interest rates on deposits.	Badkar, 2014; Rogoff, 2014; Giles, 2015; Bloomberg, 2016; Boudreau and Oanh, 2016; Martin, 2016; Soble, 2016; Accord et al. 2017; Dowd, 2017; BEUC, 2019; Ericksson and Sandhill, 2019
15. The threat of disconnection from the financial system for non-compliance.	Sajter, 2013; Coppola, 2015; Scott, 2018; Skingsley, 2018; Ericksson and Sandhill, 2019
16. An uneven digital economy readiness across countries or geographic regions	Accord et al. 2017; Cerulus and Contiguglia, 2018; Kim, 2018; BEUC, 2019; Vaudevan, 2020
17. Significant security threats to transactions, data and biometrics	Accord et al. 2017; Rolander, 2017; Tawade, 2017; Brahma and Dutta, 2018; Cerulus and Contiguglia, 2018; BEUC, 2019; Ericksson and Sandhill, 2019; FATF, 2019; Murphy, 2019; Handayani et al., 2020; Vaudevan, 2020
18. The removal of cash may stall economies/local micro economies.	Cerulus and Contiguglia, 2018; Kim, 2018; Sewraz, 2018
19. There is a risk of a totalitarian regime and an undermining of democracy.	Economist, 1988; Sajter, 2013; Accord et al. 2017; Scott, 2018; Murphy, 2019; Handayani et al., 2020
20. There are sovereignty risks.	Economist, 1988; Sajter, 2013; Accord et al. 2017; Scott, 2018; Skingsley, 2018; Ericksson and Sandhill, 2019; FATF, 2019; Murphy, 2019; Handayani et al., 2020; Vaudevan, 2020; Arnold, 2021
21. It significantly undermines privacy as it practically eliminates any option to opt-out as there is no cash alternative.	Sajter, 2013; Rolander, 2017; Brahma and Dutta, 2018; Skingsley, 2018; BEUC, 2019; Ericksson and Sandhill, 2019; Clark, 2020; Handayani et al., 2020; Vaudevan, 2020
22. A lack of competition on the payments market	Accord et al. 2017; Brahma and Dutta, 2018; Vaudevan, 2020
23. The imposition of charges to use money will be in the hands of private companies.	Brahma and Dutta, 2018; Ericksson and Sandhill, 2019; FATF, 2019; Vaudevan, 2020
24. Governments and business can be effectively held to ransom by payment companies when it comes to negotiations about pricing/service charges.	Economist, 1988; Sajter, 2013; Scott, 2018; Ericksson and Sandhill, 2019; Vaudevan, 2020
25. Excessive reliance on technology for both basic and critical needs.	Sajter, 2013; Rolander, 2017; Tawade, 2017; Scott, 2018; Skingsley, 2018; BEUC, 2019; Ericksson and Sandhill, 2019; Quinn, 2019
26. Disruption to technology can cause financial and economic instability	Accord et al 2017; Rolander, 2017; Skingsley, 2018; Vaudevan, 2020
27. Potential to eliminate global currencies and adopt a single global currency.	Economist, 1988; Dunwoodie and Myers, 1999; Economist, 2012; Accord et al. 2017; Skingsley, 2018; Murphy, 2019; Vaudevan, 2020

28. Technology companies can insist that consumers buying their new devices and install their Apps to continue using their payments service.	Scott, 2018; Ericksson and Sandhill, 2019
29. Technology companies can refuse to share knowledge, expertise and technology with central banks seeking to issue CDBC's.	Sajter, 2013; Scott et al., 2020
30. Governments and regulators can be rendered powerless to regulate, investigate or fine payment service providers or their parent corporations.	Economist, 1988; Sajter, 2013; Accord et al. 2017; Scott, 2018; Skingsley, 2018; BEUC, 2019; Vaudevan, 2020

These impacts demonstrate the requirement for governments, central banks, regulators and politicians to take control by regulating cashless payments and planning for any further transition rather than allow it to continue by stealth and unplanned. The digitalization process and the removal of cash in its physical form from society creates a shift in the balance of power from both individuals and from the welfare services provided by the state to global private actors.

As this unwanted effect becomes increasingly apparent both for individuals and for governmental institutions, governments must shift its awareness and realize that it has underestimated the impact of privatized, commercialized, digitized payment services (Ericksson and Sandhill, 2019). Rushing an economy into a cashless state without proper planning and infrastructure will be disastrous and its consequences will be everlasting (Uma Devi, 2019; Metri and Jindappa, 2017). Governments should urgently give financial regulators or central banks a duty to protect access to cash and examine the issues driving change in the payments sector, to ensure no one is left behind as digital payments grow in popularity (Sewraz, 2018).

The War on Cash: The Need for Regulation

In a position paper entitled 'Cash versus Cashless' (BEUC, 2019), the European Consumers Association makes multiple recommendations for EU level actions to ensure that consumers have a non-discriminatory right to access and use cash. The BEUC acts as the umbrella group in Brussels for its 45 independent national consumer organisations and defends the interests of European consumers. According to BEUC (2019) cash guarantees the consumer's privacy, ensures the financial inclusion of people who don't have a bank account, is independent from energy outages or from information technology failures, and it contributes to a more competitive retail payments market by preventing market domination by a few payment companies, and thus, cash needs protecting. BEUC is far from the first consumer association to speak out in favour of cash. In Sweden, Sveriges Konsumenter, the Swedish Consumers

Association, published a study showing that 7 out of 10 consumers want to be able to pay by cash in the future. In Spain, Facua Consumidores en Acción, the Spanish Consumers Association, is suing a sunglasses retailer for refusing to accept cash, arguing that this practice goes against the Spanish civil code and local laws. In the UK, the consumers association Which? has been petitioning for increased access to cash.

Critical voices are also beginning to emerge in the literature and these voices are becoming louder and more frequent, raising questions such as:

1. Who benefits from this development besides the big banks and technology companies? (Ericksson and Sandhill, 2019).
2. What will the consequences be when physical money no longer is an option? (Ericksson and Sandhill, 2019).
3. What can be said about citizen integrity and the increasing vulnerability of society? (Ericksson and Sandhill, 2019).
4. What will happen with the people not included in the digital world? (Ericksson and Sandhill, 2019).
5. What will a cashless society mean for the economics of a society? (Achord et al., 2017).
6. What will be the financial stability of an economy as it progresses towards de-cashing? (Achord et al., 2017).
7. What are the possibilities and consequences of central bank digital currencies (CBDCs)? (Achord et al., 2017).
8. What effects will a cashless society have on crime, tax evasion, and illegal immigration? (Achord et al., 2017).
9. What kind of Legal and Regulatory framework might be required as domestic and other economies transition towards electronic and digital currencies? (Achord et al., 2017). There are also a number of critical questions emerging from an analysis of the literature. In a world dominated by digitized and privatized payment systems, these issues will have a huge impact on all of our lives and are thus worthy of further research and include:
10. How will governments ensure that critical payment services and payments infrastructure are protected from cyberattacks, physical infrastructural attacks, atmospheric attacks, and power outages?
11. How will governments prevent consumers from being locked-in to a proprietary payment service when using a proprietary mobile phone (e.g.) Apple I-Phone and Apple Wallet?
12. How will governments prevent well-established, financially secure, private companies from enticing consumers to use their proprietary payment services by providing free proprietary

mobile devices and thus, undermining market competition in both the payment services and device manufacturing markets?

13. How will governments prevent cartel-like behaviour among payment services providers when it comes to setting mobile device prices, mobile payment service charges and other related terms and conditions?

14. What power will governments have to regulate charges imposed on consumers using privatized digital payment services?

15. What power will governments have to ensure that consumers are not disconnected entirely from the payment system and hence the financial system, should a private payments organisation deem them to have breached a term or condition?

16. What will the consequences be for consumers disempowered by a lack of unrestricted access to and use of their own digitized wealth, if access and use is controlled by private payment companies, with a vested interest in maintaining liquidity levels?

17. What will the consequences be for consumers if private payment companies restrict purchases of particular products and services using their payment services on ideological, puritanical, economic, or competitive advantage reasons?

18. What will the consequences be for consumers, especially if they are locked into a particular proprietary payment service and using a proprietary mobile phone, if retailers or service providers refuse to accept payments using the payment services of a particular payment provider based on disagreements over the wholesale service charges?

19. How well informed are consumers about the negative consequences of a cashless society and would their behaviour change towards digital payments if they were better informed?

20. What is the future for Central Bank Digital Currencies (CBDC) if technology firms are determined to launch their own corporate controlled currencies?

21. What real power will governments have to regulate, prosecute and impose fines on payment service providers, if these providers threaten to suspend or withdraw payment services in that country?

22. If all cash is digitized, what is Plan B; what is the back-up plan in the event of temporary or even sustained failure of critical payment services and payments infrastructure and how will consumers purchase vital goods and services needed for survival?

The researcher argues that the only way a government can address these critical questions is by enshrining a right for consumers to pay in cash in the constitution of each and every EU member state and indeed every country in the world. Furthermore, it should be made illegal for banks, payment services, and ATM service providers to impose excessive charges on

consumers for continuing to engage in cash payments, and appropriate pricing mechanisms should be embedded in banking and payment licenses by the financial licensing authorities in every country to ensure compliance. The BEUC (2019) position paper issues four recommendations to ensure access to and acceptance of cash:

1. All physical traders are obliged to accept payments in cash and make it the EU legal tender. Cash is the only means of payment protecting privacy and ensuring social inclusion. This general rule should be adapted to the various situations, for example, when the value of the banknote is disproportionate to the value of the purchase.
2. Consumer access to cash is free of charge, at least when using the ATM network of their bank. Plus, consumers should have the right to make several free of charge withdrawals per month at other ATMs. Countries where ATM fees are currently prohibited should maintain the prohibition.
3. There is a minimum availability and balanced geographical distribution of ATMs within each Member State across the EU.
4. 'Cash withdrawals in shops' are promoted, as a complementary option to the use of ATMs.

These recommendations have largely been sidelined during the Covid-19 pandemic despite concrete evidence from reputable sources discounting the association of cash with increased virus contagion. The BEUC (2019) argue that the European Central Bank (ECB) should give a high priority to the working group on access to cash. In 2018, BEUC, as a member of the Euro Retail Payments Board (ERPB), asked for the creation at EU level of a working group on access to cash. This proposal was included in the ERPB work programme 2019-2020, but the working group was not formally established until February 2021 and their interim report is not due until November 2021 (ECB, 2021). Furthermore, the official ECB mandate simply describes this report as a "stock-take exercise". The ECB should give this working group and its pending report a far higher priority as this recognition is more important now than ever. Similarly, suggestions by Fabio Panetta of the ECB that a Digital Euro will be available in approximately five years in 2026, to protect the eurozone from the threat of competing cryptocurrencies that could undermine the bloc's monetary sovereignty (Arnold, 2021b), are utterly benign and detached from reality. By then privatized and commercialized digital cash will be ingrained and embedded into consumer transactions and economies. It will be an immovable object and the Eurozone, or indeed individual countries, will simply lack the infrastructure to deliver digital cash to consumer devices as FinTech and Technology companies will have no incentive to support such a CBBC on their digital platforms.

According to Skingsley (2018) in the coming years, some hard choices will be required. One option is to do nothing, meaning we accept that the general public no longer has access to central bank money. Such a future would imply a changed scope for the public sector. The payment market would have to be regulated and supervised in new ways to meet fulfil the objective to have a safe, efficient, and inclusive payment market. As a society, we cannot do nothing, we cannot allow cash to be digitized and privatized by stealth. As academics and researchers, we must turn our attention to the consequences of a cashless society so we may identify solutions or mitigations and open a regulatory path towards a possible transition.

Thus, in light of these events and calls for action, the researcher strongly urges the academic community to engage in meaningful discussions about the future of cash and the regulatory requirements of a digitized, privatized, cashless society. The researcher calls for future research to focus more strenuously on this topic but particularly on topics such as 1) protection of critical payment services and payments infrastructure; 2) prevention of consumers from being locked-in to a proprietary payment services and devices; 3) prevention of cartel-like behaviour among payment services providers; 4) regulation of charges imposed on consumers using privatized digital payment services; 5) consumer disempowerment by a lack of unrestricted access to their digitized wealth; 6) restrictions on purchases using payment services based on ideological, puritanical, economic, or competitive advantage reasons; 8) protection of consumer data and privacy when using digital payments; 9) the future for Central Bank Digital Currencies (CBDC) and the role of distributed ledger technology and blockchain in CBDCs; and, 10) the impact of financial exclusion and discriminatory digital payment practices on marginalised members of society.

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