Digital Privacy / Public Money

The ECASH Act

(https://twitter.com/ecashact)

About

On March 28, 2022, Rep. Stephen Lynch (MA-08), Chair of the House Committee on Financial Services' Task Force on Financial Technology, introduced the *Electronic Currency and Secure Hardware (ECASH) Act* (full text **here (/bill)**).

The ECASH Act is co-sponsored by Rep.'s Jesús G. “Chuy” García (IL-04), Rashida Tlaib (MI-13), Ayanna Pressley (MA-07), and Alma Adams (NC-12) of the Committee on Financial Services, and endorsed by Americans for Financial Reform, Demand Progress, the Action Center on Race and the Economy (ACRE), and Public Money Action.

The bill directs the Secretary of the Treasury to develop and pilot digital dollar technologies that replicate the privacy-respecting features of physical cash, in order to promote greater financial inclusion, maximize consumer protection and data privacy, and advance U.S. efforts to develop and regulate digital assets.

It has been covered by the New York Times, Financial Times, Wired Magazine, Coindesk, and Standard & Poors, among others (full list of media coverage **here (/#media)**).

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Frequently Asked Questions

15. Doesn't this undermine Monetary Policy and threaten Federal Reserve independence? (/#independence)

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1. What does the ECASH Act do? (/#ecashact)

The ECASH Act:

1. Directs the Secretary of the Treasury to develop and introduce a form of retail digital dollar called "**e-cash** (/#what)," which replicates the offline-capable, peer-to-peer, privacy-respecting, zero transaction-fee, and **payable-to-bearer** (/#bearerinstrument) features of physical cash, and to coordinate their efforts with other agencies, including the Federal Reserve through an intergovernmental Digital Dollar Council led by the Treasury Secretary;

2. Establishes an Electronic Currency Innovation Program within the U.S. Treasury to test and evaluate different forms of secure hardware-based **e-cash devices** (/#devices) that do not require internet access, third-party validation, or settlement on or via a common ledger, with a focus on widely available, interoperable architectures such as stored-value cards and cell phones;

3. Establishes an independent Monetary Privacy Board to oversee and monitor the federal government's efforts to preserve monetary privacy and protect civil liberties in the development of digital dollar technologies and services, and directs the Treasury Secretary to, wherever possible, promote and prioritise open-source licensed software and hardware, and to make all technical information available for public review and comment; and

4. Establishes a special-purpose, ring-fenced Treasury overdraft account at the Federal Reserve Bank of New York to cover any and all government expenses related to the development and piloting of E-Cash, and directs the Board of Governors of the Federal Reserve System to take appropriate liquidity-support measures to ensure that the introduction of e-cash does not

reduce the ability of banks, credit unions, or community development financial institutions to extend credit and other financial services to underserved populations, as prescribed under the Community Reinvestment Act of 1977 and related laws.

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2. What is E-Cash? (/#what)

The ECASH Act defines e-cash as a currency instrument that is:

1. **Legal tender** issued by the U.S. Treasury, and a general obligation of the United States, not included in calculations of public debt subject to limit under the debt ceiling;

2. **A bearer instrument** distributed directly to, and able to be owned, held, and used directly by the general public via secured hardware devices, and capable of instantaneous, final, direct, peer-to-peer, offline transactions that do not involve or require subsequent or final settlement on or via a common or distributed ledger, or any other additional approval or validation by the United States Government or any other third-party payments processing intermediary;

3. **Interoperable** with all existing financial institution and payment provider systems and generally accepted payments standards and network protocols, as well as other public payments programs, and any other digital dollar or public banking products;

4. Designed and administered to **replicate the anonymity and privacy-respecting features of physical cash** to the greatest extent reasonably and practically possible, including being classified and regulated in a manner similar to physical currency, and thus not subject to third-party exemptions to a reasonable expectation of privacy as is the case for account-based monies;

5. Designed and administered to **promote equity and justice** for historically marginalized communities and excluded populations, and to **prioritize universal access and usability**, particularly for individuals with disabilities,

low-income individuals, and communities with limited access to the internet or telecommunications networks.

Importantly, E-Cash is ***not***:

1. **A CBDC (Central Bank Digital Currency)**. Although E-Cash is a form of digital dollar, it is issued by the Treasury, not the Federal Reserve, and accordingly is not a CBDC.

2. **In competition with a CBDC**. E-Cash is intended to complement and be developed in parallel to other forms of digital public finance, including CBDCs, FedAccounts, Postal Banking, and Public Banking.

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3. What is an E-Cash device?

An E-Cash device is any piece of secured hardware issued and/or authorised by the government for the purpose of receiving, holding, and transferring e-cash balances.

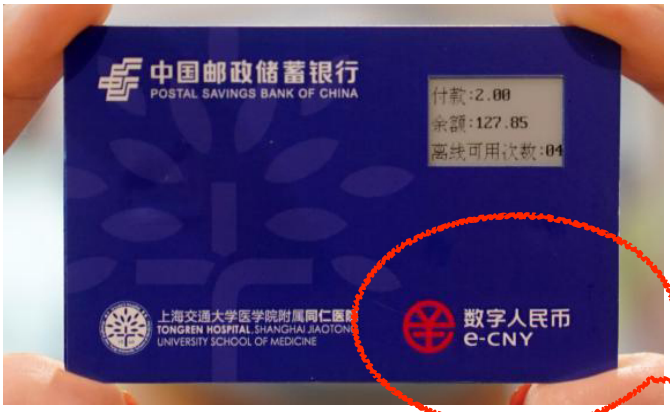
In contrast to ledger-based systems (including those that use a blockchain and/or distributed-ledger rather than a centralized ledge), which prevent double-spending by verifying unspent balances against a common record of all previous transactions, e-cash devices verify funds locally via a dedicated or trusted computing environment located on the device itself.

This allows it to facilitate both offline and genuine peer-to-peer transactions without generating transactional data or requiring the approval of third party intermediaries or network validator nodes.

There are a variety of potential forms such devices may take, which is why the ECASH Act directs the U.S. Treasury to experiment with multiple pilot designs simultaneously.

However, the most common forms, and thus most likely to be adopted initially, are a payments card and a secured chip environment on a cell phone.

For example, this is the offline-capable smart payments card that was **introduced in China in 2021 (https://forkast.news/china-dcep-ermb-card-digitalyuan/)** as part of its digital Yuan rollout, :



e-CNY!

This is the Avant stored-value card, which was capable of **anonymous, peer-to-peer payments using a custom-made card reader device (https://helda.helsinki.fi/bof/bitstream/handle/123456789/17590/BoFER_8_2020.|** It was was issued by the Bank of Finland in 1992, making it (arguably) the **world's first Central Bank Digital Currency (https://helda.helsinki.fi/bof/bitstream/handle/123456789/17590/BoFER_8_2020.|**

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4. What is a bearer instrument?

A bearer instrument represents a legal obligation to pay whoever has legitimate physical possession of the instrument.

Many forms of monetary obligations have circulated as bearer instruments over the millennia, including paper notes, wooden tally sticks, and more recently, electronic value claims stored on secured hardware devices or recorded on open ledgers.

Bearer instruments are typically contrasted with account-based monies, where the right to payment is established via authentication of a person's identity by a third-party intermediary.

A distinct but related legal concept is that of "currency." As monetary law expert and Cambridge Law Professor David Fox **explains** (https://ecashact.us/files/Fox1996.pdf):

> *Currency is a special legal attribute which allows a recipient of money to take a fresh legal title which is good against the whole world.*
>
> *Money passes into currency in this way when it is received by a bona fide purchaser for valuable consideration. At this point the title of any previous owner of the money from whom it may have been stolen is extinguished.*
>
> *It helps money to circulate readily in the economy in that it reduces the need for recipients to make detailed inquiries into the title of people who tender money in payment of debts or to buy goods.*
>
> — ***Bona Fide Purchase and the Currency of Money, Cambridge Law Journal 55:3 (1996)*** *(https://ecashact.us/files/Fox1996.pdf)*

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5. Does E-Cash involve blockchain or distributed ledger technology? (/#transaction)

No. In contrast to most cryptocurrencies like Bitcoin and Ethereum, E-Cash is a true **bearer instrument** (/#bearerinstrument). Consequently, E-Cash transactions **do not involve or require settlement via a blockchain or distributed ledger** (https://www.ecurrency.net/post/blockchain-is-the-wrong-technology-choice-for-delivering-central-bank-digital-currency-cbdc).

Instead, an E-Cash transaction works by transferring an e-cash balance, which is a unique digital representation of value issued and verified by the government, from one **secure hardware device** to another. The hardware devices themselves, as well as the security measures undertaken by government at the point of original issue, are responsible for preventing double-spending and counterfeiting.

For more information, see the **secure hardware-related technical materials** (/#hardwaresecuredtech) in the **Other Resources section** (/#resources) below.

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6. What distinguishes E-Cash from other forms of digital money? (/#unique)

E-Cash is the only form of digital currency that is simultaneously:

1. Denominated in U.S. dollars;
2. Issued and guaranteed by the U.S. government;
3. Available for retail use by the public;
4. Not reliant on a common ledger or any third-party payments processing intermediary; and
5. Capable of anonymous, offline, peer-to-peer payments.

Instrument	Unit of Account	Issued by	Retail-Oriented/ Direct to Public?	Ledger or Hardware-Based	Anonymous, Offline, Peer-to-Peer
Cryptocurrencies	Own	Private Sector	Yes	Ledger	No
Stablecoins	$US	Private Sector	Yes	Ledger	No
Bank Deposits	$US	Private Sector / *(Govt Insured)*	Yes	Ledger	No
Central Bank Reserves	$US	Government	No	Ledger	No
CBDC (2-Tier Model)	$US	Government	No	Ledger	No
FedAccounts/ TreasuryDirect	$US	Government	Yes	Ledger	No
E-Cash	$US	Government	Yes	Hardware	Yes

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7. Why use E-Cash over other forms of digital money/payments? (/#whyuse)

E-Cash is well-suited to individuals who:

1. Lack access to traditional banking/payments services;
2. Value privacy and wish to avoid surveillance and/or data-mining;
3. Are concerned about third-party censorship and/or discrimination;
3. Lack reliable internet or digital network connectivity; and
5. Are low-income and/or cannot afford high transaction, withdrawal, and exchange fees.

On the other hand, E-Cash, like physical cash, does not pay interest, and offers less third-party protections than traditional bank accounts or payments app (chargebacks, loss and fraud-prevention, etc).

Consequently, even though most people will probably choose to keep some day-to-day spending money in the form of E-Cash, they are unlikely to invest all of their life savings into it.

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8. Why issue this via the Treasury and not the Federal Reserve? (/#cb)

The Treasury has historically been responsible for designing, issuing, and securing physical currency like coins (via **the Mint** (https://www.usmint.gov/)) and notes (via **the Bureau of Engraving and Printing** (https://www.moneyfactory.gov/)), as well as hardware-secured forms of retail digital money, like **pre-paid debit cards** (https://www.fiscal.treasury.gov/us-debit-card/) and **stored value cards** (https://www.fiscal.treasury.gov/eaglecash/) (via the **Bureau of the Fiscal Service** (https://www.fiscal.treasury.gov/)).

Moreover, the Treasury has experience with administering **large-scale retail payments programs** (https://home.treasury.gov/policy-

issues/coronavirus/assistance-for-american-families-and-workers/economic-impact-payments), as well as coordinating inter-agency responses to systemically important financial technologies and industries. In addition, it possesses the the institutional expertise and political legitimacy to navigate a complex balancing act between privacy, security, law enforcement, and civil liberties interests.

Indeed, the Treasury was arguably the first agency to explore the possibility of issuing a hardware-secured, privacy-respecting form of E-Cash. As Law Professor Rohan Grey **noted in his testimony** (https://rohangrey.net/files/testimony-6-15-21-written.pdf#page=9) to the U.S. House Committee on Financial Services' Task Force on Financial Technology Hearing on "**Digitizing the Dollar: Investigating the Technological Infrastructure, Privacy, and Financial Inclusion Implications of Central Bank Digital Currencies** (https://www.youtube.com/watch?v=k5LhZ4G4s-A)" on June 21, 2021:

> *In 1995, the Electronic Money Task Force of the Treasury Department proposed the creation of a study commission into the creation of a Mint-issued digital currency card, as part of Vice President Gore's broader National Performance Review initiative to "reinvent government" in light of emerging internet and other digital technologies.*
>
> *In an October 1995* ***hearing before the House Banking Committee on Domestic and International Monetary Policy on the topic of "The Future of Money,"*** *(https://ia802708.us.archive.org/31/items/futureofmoneyhea02unit/futureofmoneyhe then-Director of the U.S. Mint, Philip Diehl, testified that the Mint's "main interest in the evolution of payments system is ... focused on stored value cards as a potential substitute for coins and currency."*
>
> *Diel Further noted that: "As sole provider of the nation's coinage, the Mint has an important role in our monetary system. As the use of stored value cards evolves, many consumers might be expected to replace coinage and currency transactions with 'e-cash' transactions, thus creating a new de facto form of currency...*
>
> *It is [thus] appropriate to ask the question whether at some point in the future the requirements of market efficiency could accelerate the federal government's role in producing a stored value card that would augment the use of coinage in commercial transactions.*

By contrast, the Federal Reserve has been researching and exploring the possibility of issuing a Central Bank Digital Currency, or "CBDC," for some time, and up until this point it has shown little interest, if not outright hostility, towards a CBDC model that is 1) capable of anonymous payments, 2) structured as a legal bearer instrument, 3) issued directly to the public, and 4) built on secure hardware.

For example, in January of 2022, the Federal Reserve released its long-awaited CBDC report, in which it noted that "the Federal Reserve Act does not authorize direct Federal Reserve accounts for individuals, and such accounts would represent a significant expansion of the Federal Reserve's role in the financial system and the economy."

Consequently, it recommended the adoption of an "intermediated model", whereby the "private sector [including commercial banks and regulated nonbank financial service providers] would offer accounts or digital wallets to facilitate the management of CBDC holdings and payments [and] operate in an open market for CBDC services."

In addition, the Federal Reserve noted that:

> *Financial institutions in the United States are subject to robust rules that are designed to combat money laundering and the financing of terrorism. A CBDC would need to be designed to comply with these rules.*
>
> *In practice, this would mean that a CBDC intermediary would need to verify the identity of a person accessing CBDC, just as banks and other financial institutions currently verify the identities of their customers.*
>
> *[...] In this regard, a CBDC would differ materially from cash, which enables anonymous transactions."*
>
> — ***Board of Goverors of the Federal Reserve System, Money and Payments: The U.S. Dollar in the Age of Digital Transformation (Jan. 2022)*** *(https://www.federalreserve.gov/publications/files/money-and-payments-20220120.pdf)*

Similarly, in February 2022, the Federal Reserve Bank of Boston and the Massachusetts Institute of Technology Digital Currency Initiative released a Report on Phase 1 of their collaborative Project Hamilton, titled "**A High Performance Payment Processing System Designed for Central Bank Digital Currencies**

(https://www.bostonfed.org/-/media/Documents/Project-Hamilton/Project-Hamilton-Phase-1-Whitepaper.pdf)," in which they noted that

> *Offline payments We have not yet explored the potential for payments using CBDC without an Internet connection. Our transaction format and data model requires interactive communication between the central bank and both transacting parties.*
>
> *One option is to operate a parallel system using trusted hardware requiring no connectivity with the central bank to conduct a transaction. Trusted hardware would be responsible for enforcing the authenticity of CBDC while outside central bank systems, and thus vulnerable to supply chain attacks or end-user tampering.*

Moreover, the Federal Reserve by its own admission has limited institutional capacity to provide retail payments services directly, and lacks the institutional expertise or political legitimacy to make decisions regarding how to balance civil liberties and law enforcement/national security interests on behalf of the broader public.

Instead, the Federal Reserve System is staffed primarily by economists trained in statistically modelling, not privacy, national security, or law enforcement experts.

Although there is broad political support for "central bank independence" nowadays, such independence has always been historically centered around issues of monetary policy (ie interest rates), not defining the future of money for the entire nation over the objections and concerns of elected officials.

To the contrary, such questions are deeply political, and consequently are best to Congress and the political executive branch, ie the President and Treasury Secretary.

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9. Is E-Cash really secure? (/#secure)

No technology is 100% safe. As with physical currency, there will always be some degree of counterfeiting and fraud risk associated with physical devices capable of being held and used locally by the end-user in offline situations.

That said, secure hardware technologies have been around for decades, and there are many companies and research teams working on different models and approaches.

The ECASH Act directs the Treasury to make all software and hardware used in the development of E-Cash technology available under an appropriate open-source license.

Moreover, by hardwiring denominational (and potentially transactional) limits into the E-Cash devices themselves, policymakers will be able to reduce the possibility of individual hacks causing systemic vulnerabilities.

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10. Is E-Cash really private? (/#private)

The struggle to preserve and defend privacy and individual liberties is ongoing, and cannot be won solely through technical means.

That said, the ECASH Act represents a major step towards protecting transactional privacy during the transition to a digitally native fiat currency regime. It does so by:

1. Directing the Treasury Secretary to "preserv[e] the privacy, anonymity-respecting, and minimal transactional data-generating properties of physical currency instruments...to the greatest extent technically and practically possible" when implementing E-Cash, including by securing E-Cash devices "locally via cryptographic encryption and other appropriate technologies;"

2. Requiring E-Cash devices be secured "locally via cryptographic encryption and other appropriate technologies," and prohibiting them from "contain[ing]

or be[ing] subject to any surveillance, personal identification or transactional data-gathering, or censorship-enabling backdoor features;"

3. Requiring that any E-Cash technology be "capable of instantaneous, final, direct, peer-to-peer, offline transactions using secured hardware devices that do not involve or require subsequent or final settlement on or via a common or distributed ledger, or any other additional approval or validation by the United States Government or any other third-party payments processing intermediary;"

4. Requiring E-Cash be classified and regulated in a manner similar to physical currency for the purposes of anti-money laundering, know-your-customer, counter-terrorism, and transaction reporting laws, and thus not subject to third-party exemptions to a reasonable expectation of privacy;

5. Prohibiting the U.S. government, as well as other counterparties or E-Cash distributors, from collecting, monitoring, or retaining data from E-Cash transactions unless explicitly authorized to do so under the ECASH Act, and prohibiting the acquisition, possession, or use of E-Cash from being being treated as prima facie or intrinsic evidence of criminal activity or intent; and

6. Establishing an independent five-member Monetary Privacy Board, and directing the Board to review, evaluate, and periodically report on the extent to which the decisions and actions of the Treasury Secretary and other actors involved in the development of E-Cash are 3 consistent with their statutory responsibilities under the ECASH Act, and more broadly, a general commitment to preserving the privacy interests of individuals and actors that use e-cash and other forms of digital dollar technologies issued or administered by the United States government.

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11. Are there any limits to the use of E-Cash? (/#limits)

E-Cash is primarily intended for use by individuals, and does not exempt any person or entity from financial reporting requirements or compliance with existing criminal and civil laws.

Although the ECASH Act does not specifiy a specific per-device denominational or transactional cap, it is expected that such limits will ultimately be incorporated into the final E-Cash design following the pilot phase, similar to how physical currency has denominational caps today.

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12. Won't the widespread adoption of E-Cash lead to an outflow of deposits from the traditional banking system, thereby reducing the availability and increasing the cost of credit? (/#liquidity)

No. E-Cash is intended to fill the social role historically played by physical currency, which represents a relatively small fraction of overall monetary activity.

Indeed, most people prefer to keep most of their money in a bank, where it earns interest and is protected from fraud, theft, or loss.

Consequently, it is unlikely that the introduction of E-Cash will result in a noticeable outflow of deposits from the traditional banking system.

However, in the event this were to occur, the bill directs the Board of Governors of the Federal Reserve System to "take appropriate measures to ensure that the implementation and adoption of e-cash does not disrupt or substantially impact the general availability or cost of liquidity" or the "exten[sion of] credit and other financial services to underserved populations," provided that such measures "in no way impair, restrict, or otherwise limit the ability of the public to access, hold, and use e-cash."

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13. How is the bill funded? (/#funding)

The ECASH Act establishes permanent, ongoing appropriations authority for spending undertaken in furtherance of E-Cash, with the specific amount to be determined by the Treasury Secretary on an ongoing basis.

This spending is not funded via taxes or the issuance of public debt.

Instead, the bill directs the Federal Reserve Bank of New York to establish a special, ring-fenced overdraft account for the Treasury, and to exempt that account from **standard accounting rules** (https://www.federalreserve.gov/econres/notes/feds-notes/somas-unrealized-loss-what-does-it-mean-20180813.htm), in order to grant the Treasury a similar degree of operational flexibility in developing its digital dollar program **as the Federal Reserve enjoys with its research and operational budget** (https://nathantankus.substack.com/p/what-if-the-federal-reserve-just?s=r).

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14. Won't digitally minting E-Cash be inflationary? (/#inflation)

No. Like physical currency, the issuance of E-Cash will adjust automatically based on consumer demand.

Moreover, there is **little difference in inflationary impact between money-financed and "debt"-financed public spending** (https://mintthecoin.org/faq/#nationaldebt).

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15. Doesn't this undermine Monetary Policy and threaten Federal Reserve independence? (/#liquidity)

No. The Federal Reserve will continue to exercise full control over interest rates, liquidity management, and the size of its balance sheet following the introduction of Treasury-issued E-Cash, just as it does today with Treasury-issued coinage, and as it did for over 50 years during which Federal Reserve Notes and U.S. Notes were **issued in parallel**.

Inteed, (https://www.treasury.gov/resource-center/faqs/currency/pages/legal-tender.aspx)

(https://www.treasury.gov/resource-center/faqs/currency/pages/legal-tender.aspx)
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Other Resources

Secure Hardware-Based Digital Currency Technologies (/#hardware)

- Mihai Christodorescu et al. (2021), **Towards a Two-Tier Hierarchical Infrastructure: An Offline Payment System for Central Bank Digital Currencies** (https://arxiv.org/pdf/2012.08003.pdf), Visa/Cornell University

- Teddy Kyung Lee (2021), **CBDC Wallets and the Security Requirements** (www.gsaglobal.org/forums/cbdc-wallets-and-the-security-requirements), Global Semiconductor Alliance

- Whispercash (2022), **Whispercash** (https://www.whispercash.com/)

- Whispercash (2022), **Offline CBDC: Product Brochure** (https://uploads-ssl.webflow.com/60afdb482e641450bc0fc81b/60e8e54ac85b35405e8ec520_V

- eCurrency Mint (2022), **eCurrency** (https://ecurrency.net)

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- Thomas Kudrycki (2020), **Blockchain is the wrong technology choice for delivering Central Bank Digital Currency (CBDC)** (https://www.ecurrency.net/post/blockchain-is-the-wrong-technology-choice-for-delivering-central-bank-digital-currency-cbdc)

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- Jonathan Dharmapalan & Rohan Grey (2017), **The Macroeconomic Policy Implication of Digital Fiat Currency** (https://www.ecurrency.net/post/the-case-for-digital-legal-tender-the-macroeconomic-policy-implication-of-digital-fiat-currency)
- Kelly Le & Mengyuan Ge (2021), **China tests new phone-free DCEP e-RMB card for helping rural poor** (https://forkast.news/china-dcep-ermb-card-digitalyuan/)

- PingWest (2021), **Hardware Wallets for China's Digital Yuan Sprung up During Spring Festival** (en.pingwest.com/a/8347)

- U.S. Treasury, Bureau of the Fiscal Service (2022), **EagleCash** (https://www.fiscal.treasury.gov/eaglecash/)

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- Aleksi Grym (2020), **Lessons learned from the world's first CBDC** (https://helda.helsinki.fi/bof/bitstream/handle/123456789/17590/BoFER_8_202 Bank of Finland

- John Miedema et al (2020), **Designing a CBDC for Universal Access** (https://www.bankofcanada.ca/2020/06/staff-analytical-note-2020-10/), Bank of Canada

- Sarah Allen et al (2020), **Design choices for Central Bank Digital Currency: Policy and technical considerations** (https://www.brookings.edu/wp-content/uploads/2020/07/Design-Choices-for-CBDC_Final-for-web.pdf), Brookings Institute

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Privacy, Cash, and Surveillance (/#privacylinks)

- #MintTheCoin! - Interview with Former Mint Director Philip N. Diehl, Public Money Action (Oct. 8, 2021) (**Transcript** (rohangrey.net/files/diehl.pdf) | **Video** (https://www.youtube.com/watch?v=vKyF67lELGM))

- Rohan Grey, **Testimony** (rohangrey.net/files/testimony-6-15-21-written.pdf) before the U.S. House of Representatives Committee on Financial Services' Task Force on Financial Technology Regarding "*Digitizing the Dollar: Investigating the Technological Infrastructure, Privacy, and Financial Inclusion Implications of Central Bank Digital Currencies*" (July 15, 2021)

- Raúl Carrillo, **Testimony** (https://financialservices.house.gov/uploadedfiles/hhrg-117-ba15-wstate-carrillor-20210415.pdf) before the U.S. House of Representatives Committee on Financial Services' Subcommittee on Consumer Protection and Financial Institutions Regarding "*Banking Innovation or*

Regulatory Evasion? Exploring Trends in Financial Institution Charters" (April 15, 2021)

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In the Media

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(Original Signature of Member)

117TH CONGRESS
2D SESSION

H. R. _____

To direct the Secretary of the Treasury to develop and pilot digital dollar technologies that replicate the privacy-respecting features of physical cash.

IN THE HOUSE OF REPRESENTATIVES

Mr. LYNCH introduced the following bill; which was referred to the Committee on _____

A BILL

To direct the Secretary of the Treasury to develop and pilot digital dollar technologies that replicate the privacy-respecting features of physical cash.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Electronic Currency And Secure Hardware Act" or the "ECASH Act".

SEC. 2. DEFINITIONS.

In this Act:

(1) ECIP.—The term ''ECIP'' means the Electronic Currency Innovation Program established under section 4.

(2) SECRETARY.—The term ''Secretary'' means the Secretary of the Treasury.

SEC. 3. ELECTRONIC DOLLAR.

(a) ESTABLISHMENT.—The Secretary of the Treasury shall promote and facilitate the development and deployment of an electronic version of the United States dollar for use by the general public that replicates and preserves the privacy, anonymity-respecting, and minimal transactional data-generating properties of physical currency instruments such as coins and notes to the greatest extent technically and practically possible.

(b) ELECTRONIC DOLLAR REQUIREMENTS.—The electronic dollar described under subsection (a) shall be—

(1) known as ''e-cash'';

(2) payable to bearer;

(3) legal tender, as described in section 5103 of title 31, United States Code;

(4) an obligation of the United States, as described in section 8 of title 18, United States Code;

(5) created and issued into circulation by the Department of the Treasury, in such quantities, denominations, and technical forms as the Secretary,

in the Secretary's discretion, determines to be appropriate;

(6) distributed directly to, and capable of being owned, held, and used directly by, the general public;

(7) capable of instantaneous, final, direct, peer-to-peer, offline transactions using secured hardware devices that do not involve or require subsequent or final settlement on or via a common or distributed ledger, or any other additional approval or validation by the United States Government or any other third-party payments processing intermediary;

(8) inter-operable with all existing financial institution and payment provider systems and generally accepted payments standards and network protocols, as well as other public payments programs, including the U.S. Debit Card and Digital Pay Program and the EagleCash card program of the Department of the Treasury and any other digital dollar or public banking products;

(9) classified and regulated in a manner similar to physical currency for the purposes of anti-money laundering, know-your-customer, counter-terrorism, and transaction reporting laws, and thus not subject to third-party exemptions to a reasonable expectation of privacy;

(10) designed, issued, and administered to be consistent with—

(A) the statutory objectives articulated in subsection (c), as well as any rules, standards, and criteria enacted to further those objectives;

(B) the consumer protections articulated in subsection (d), as well as any rules, standards, and criteria enacted to further those protections; and

(C) any and all other technical and policy criteria established by this Act or by the Secretary or Director under the authority granted to them under this Act;

(11) distinguishable from other forms of electronic currency issued by or on behalf of the United States Government, including any such forms that—

(A) are issued by a department, branch, agency, or instrumentality of the United States Government other than the Department of the Treasury, including such forms of "central bank digital currency" as may be issued by the Board of Governors of the Federal Reserve System or its designated agents;

(B) are legally classified as an account balance or any other kind of financial instrument

not payable to bearer or that otherwise require identification and account or device registration to hold, access, or use;

(C) are not distributed directly to, or otherwise capable of being owned, held, or used directly by, the general public;

(D) fail to replicate and preserve the privacy, anonymity-respecting, and minimal transactional data-generating properties of physical currency instruments such as coins and paper notes to the greatest extent technically and practically possible; and

(12) not included in calculations of public debt subject to limit under section 3101 of title 31, United States Code.

(c) STATUTORY OBJECTIVES.—The Secretary shall promulgate and enforce rules, standards, and criteria pertaining to the development and implementation of e-cash instruments, devices, technologies, platforms, and supporting and enabling infrastructure, as well as the issuance, dissemination, circulation, storage, and use of e-cash balances, including use in transactions, in such a manner and to such an extent as the Secretary determines to be necessary or appropriate to achieve the objectives of this Act, subject to the following conditions:

(1) OWNERSHIP.—The Secretary shall require that any and all e-cash instruments are capable of being owned, held, and used directly by the general public via widely available hardware devices, without the necessary involvement of third-party custodial or payment processing intermediaries.

(2) PRIVACY.—The Secretary shall require that any hardware device authorized to hold or otherwise facilitate transactions involving e-cash shall be secured locally via cryptographic encryption and other appropriate technologies, and shall not contain or be subject to any surveillance, personal identification or transactional data-gathering, or censorship-enabling backdoor features.

(3) UNIVERSALITY.—The Secretary shall prioritize wherever possible technologies, practices, and programs that promote universal access and usability, particularly for—

(A) individuals with disabilities, including visual impairment;

(B) low-income individuals; and

(C) communities with limited access to the internet or telecommunications networks.

(4) INCLUSION.—The Secretary shall take into consideration the unique needs and circumstances of

marginalized communities and populations that have historically been excluded from or otherwise prevented from taking full advantage of traditional and current financial institutions and payment services.

(5) TRANSPARENCY.—The Secretary shall seek out and prioritize wherever practically feasible the use of hardware and software technologies issued under open-source licenses, and shall further require that all publicly funded research and technology be released under a suitable open-source license and made available for study and review by the scientific community and the general public, except to the extent that doing so would undermine or impair the security and integrity of e-cash devices or instruments.

(d) CONSUMER PROTECTIONS.—

(1) FEES.—The Government may charge reasonable prices when selling e-cash-compatible hardware (henceforth ''e-cash devices'') directly to the public, provided such prices are proportionate to, and not unduly in excess of, actual production and administration costs, but may in no instance impose fees or other charges for holding, receiving, sending, or otherwise transacting with e-cash balances using such devices.

(2) SOLICITED ISSUANCE OF E-CASH HARDWARE DEVICES.—The Government or an authorized e-cash distributor may issue an e-cash device to a member of the public only in response to an oral or written request for such device.

(3) SOLICITED ISSUANCE OF E-CASH BALANCES.—The Government or an authorized e-cash distributor may issue e-cash instruments to a user only in response to an oral or written request to receive funds in the form of e-cash, and any such requested funds shall be capable of being—

(A) received in the form of an increase in the available balance of an existing e-cash device or as a balance on a newly-issued e-cash device; and

(B) paid for, to the extent such instruments shall be paid for, through delivery of physical currency or demand deposits at an interoperable exchange terminal.

(4) DISCLOSURES BY E-CASH DISTRIBUTORS.—

(A) IN GENERAL.—Disclosures by the United States Government and any third-party authorized to distribute e-cash devices or balances regarding usage, fees, interoperability, security, privacy, data collection, error resolution,

and any other terms considered relevant by the Bureau of Consumer Financial Protection shall be clear and readily understandable, in writing, and in a form the e-cash instrument bearer can reasonably maintain.

(B) FORM OF DISCLOSURES.—Disclosures described under subparagraph (A) may be provided to the consumer in offline electronic form, subject to compliance with the consumer-consent and other applicable provisions of the Electronic Signatures in Global and National Commerce Act (15 U.S.C. 7001 et seq.).

(5) LIABILITY OF ISSUERS FOR UNAUTHORIZED TRANSFERS.—Neither the issuing entity nor any other Government agencies or approved e-cash distributors shall be held liable for unauthorized transfer of e-cash balances, so long as the appropriate disclosures and protections described in this Act are made.

(6) FEES BY MERCHANTS.—It shall be unlawful for the United States Government, authorized e-cash distributors, or any other person to impose a service fee or an interchange fee, or other processing fee or surcharge, for the use of e-cash in payments or purchases.

(7) BANKRUPTCY.—E-cash instruments and balances shall be considered exempt property equivalent to physical currency for the purposes of Chapter 7 Bankruptcy proceedings.

(8) TRANSACTIONAL REPORTING.—Under no circumstance, regardless of the particular technology involved, shall any transaction data generated by e-cash payments be collected, monitored, or retained by the United States Government, an authorized e-cash distributor, or any other counterparty except via the exemptions provided by this Act.

(9) PREEMPTION OF INCONSISTENT STATE LAWS.—State consumer laws are pre-empted unless the Director of the Bureau of Consumer Financial Protection determines, upon the Director's own motion or upon the request of a State government, but ultimately in the Director's sole discretion, that a State's consumer protection laws are not pre-empted.

(e) REQUIREMENT TO ACCEPT E-CASH.—

(1) FEDERAL GOVERNMENT.—The Federal Government shall—

(A) accept e-cash for any payment to the Federal Government, including payments for taxes, fines, and fees; and

(B) upon request, provide any Federal Government benefit in the form of e-cash.

(2) PRODUCTS AND SERVICES.—Any person selling products or services that accepts physical currency as a form of payment shall also accept e-cash as a form of payment to the extent it is practically feasible and reasonable to do so.

(f) ILLICIT FLOWS.—

(1) PRESUMPTION OF LEGITIMATE USE.—Under no condition shall the acquisition, possession, or use of e-cash devices, instruments, and balances under the parameters established by this Act be treated as prima facie or intrinsic evidence of criminal activity or intent, nor be established as a predicate offense or factor in crimes not specified in or under the authority established by this Act.

(2) INCLUDING UNDER THE BANK SECRECY ACT.—

(A) IN GENERAL.—Section 5312(a)(3) of title 31, United States Code, is amended—

(i) in subparagraph (C), by striking ''and'' at the end;

(ii) by redesignating subparagraph (D) as subparagraph (E);

(iii) by inserting after subparagraph (C) the following:

"(D) e-cash, as defined under section 3 of the ECASH Act; and"; and

(iv) in subparagraph (E), as so redesignated, by striking "subparagraph (A), (B), or (C)" and inserting "subparagraph (A), (B), (C), or (D)".

(B) AMENDMENTS TO DOLLAR THRESHOLDS.—At any time, the Director of ECIP may increase the value thresholds applicable to e-cash for any reporting requirement under subchapter II of chapter 53 of title 31, United States Code, but may at no time decrease such value thresholds.

(g) SYSTEMIC LIQUIDITY.—The Board of Governors of the Federal Reserve System shall take appropriate measures to ensure that the implementation and adoption of e-cash does not disrupt or substantially impact the general availability or cost of liquidity for depository institutions, credit unions, or community development financial institutions, or their capacity to extend credit and other financial services to underserved populations, as described under the Community Reinvestment Act of 1977, and any other applicable Federal and State laws, however such

measures may in no way impair, restrict, or otherwise limit the ability of the public to access, hold, and use e-cash.

SEC. 4. ELECTRONIC CURRENCY INNOVATION PROGRAM.

(a) IN GENERAL.—The Secretary shall establish the Electronic Currency Innovation Program to direct, oversee, coordinate, and harmonize the development, implementation, maintenance, and regulation of e-cash instruments, devices, technologies, platforms, and supporting and enabling infrastructure in accordance with the technical and policy criteria established by this Act.

(b) DIRECTOR.—

(1) APPOINTMENT.—

(A) IN GENERAL.—The head of the ECIP shall be the Director, who shall be appointed by the President, by and with the advice and consent of the Senate.

(B) TERM.— The term of the Director is 5 years.

(C) REMOVAL.—The President may remove the Director from office. On removal, the President shall send a message to the Senate giving the reasons for removal.

(D) INTERIM DIRECTOR.—When a Director has not yet been confirmed or appointed,

the Secretary may, subject to the consent of the President, appoint an Interim Director, who shall enjoy the full powers and privileges of the Director as established under this Act until such time as a permanent Director is confirmed and appointed. In the event neither a Director or Interim Director is appointed, all responsibilities and duties assigned to the Director under this Act shall be assumed by the Secretary.

(2) DUTIES AND POWERS.—The duties and powers of the Director are as follows:

(A) Promote innovation in, and ensure the successful implementation and widespread adoption of, e-cash instruments, devices, technologies, platforms, and supporting and enabling infrastructure in accordance with this Act, by—

(i) directing, conducting, sponsoring, and publishing research;

(ii) generating, collecting, analyzing, and publishing data;

(iii) acquiring, developing, disseminating, and sharing open-access technologies and technical knowledge;

(v) developing and administering e-cash pilot programs, both individually and in partnership with other actors and entities that the Secretary determines appropriate;

(vi) promulgating, and enforcing rules, objectives, standards, and criteria pertaining to the development and implementation of e-cash instruments, devices, technologies, platforms, and supporting and enabling infrastructure, as well as the issuance, dissemination, circulation, storage, and use of e-cash, including its use in transactions;

(vii) coordinating with other actors, including other departments, branches, agencies, and instrumentalities of the United States Government, as well as State, local, and foreign governments and international regulatory bodies, in furtherance of the general goals of this Act; and

(viii) developing and disseminating public educational materials and conducting public educational campaigns to foster awareness and understanding of e-

cash and its economic and social significance in the broader monetary system; and

(B) Such other duties and powers as the Secretary may delegate or prescribe.

(c) STAFF, EQUIPMENT, AND FACILITIES.—The Director shall be authorized to hire staff, purchase equipment, and rent or acquire facilities as the Director determines to be appropriate to achieve the goals and objectives established under this Act, subject to the approval of the Secretary.

(d) PILOT PROGRAMS.—

(1) ESTABLISHMENT.—

(A) IN GENERAL.—Not later than 90 days after the enactment of this Act, the Director shall initiate a two-phase e-cash pilot program in anticipation of general deployment of e-cash to the public not later than forty-eight months after the date of enactment of this Act.

(B) PHASE 1.—Phase 1 of the pilot program shall consist of not less than three distinct pilots (in this section referred to as ''Proof-of-Concept Pilots''), each of which shall launch no later than 180 days after the date of enactment of this Act, and run for no longer than 360 days thereafter.

(C) PHASE 2.—Phase 2 of the pilot program shall consist of at least one large-scale deployment to a segment of the public (in this section referred to as ''Field Test Pilots''), which shall launch no later than 2 years after the enactment of this Act, and run for no longer than 2 years thereafter.

(D) EXTENSION OF TIMELINES FOR PILOT PROGRAMS.—The timelines for the implementation of the two phases of the e-cash pilot program described in this paragraph may be extended upon a determination by the Director that such an extension is necessary to ensure the security and integrity of the technologies to be piloted in the program.

(2) ADMINISTRATION.—

(A) IN GENERAL.—The pilot programs shall be administered by the Director, in coordination with the Digital Dollar Council, and subject to the ongoing oversight and review of the Monetary Privacy Board.

(B) PROOF-OF-CONCEPT PILOTS.—Proof-of-Concept Pilots may be conducted—

(i) in partnership with one or more universities, non-profit entities, insured fi-

nancial institutions, non-bank payment providers aimed at promoting financial inclusion, technology-focused financial firms and companies, financial technology companies, or foreign central banks; and

(ii) through, or in partnership with, any existing Federal, State, or local government fund disbursement and payments program, including those that rely on the U.S. Debit Card and Digital Pay Program, the EagleCash Card program, or any other payments technology offered by or in partnership with the Bureau of the Fiscal Service of the Department of the Treasury.

(C) FIELD TEST PILOTS.—Field Test Pilots may be conducted in partnership with any entity capable of partnering for a Proof-of-Concept Pilot, as well as other departments, branches, agencies, and instrumentalities of the United States Government, or State, local, and foreign governments and international regulatory bodies.

(3) OBJECTIVES.—The objectives of the pilot programs are to test the viability and capacity of various forms of e-cash technologies to—

(A) preserve the privacy, anonymity-respecting, and minimal transactional data-generating properties of physical currency instruments such as coins and notes to the greatest extent technically and practically possible;

(B) enforce total balance and transactional activity limits on a per-device basis without rendering such devices vulnerable to surveillance or censorship by third parties including the United States Government;

(C) deploy rapidly, securely, and efficiently on a mass scale; and

(D) maintain ease of use and interoperability with existing financial institution and payment provider systems, as well as any other digital dollar products.

(4) PARAMETERS AND CONSTRAINTS.—

(A) All technologies selected for Proof-of-Concept Pilots and Field Test Pilots shall be—

(i) designed as bearer instruments;

(ii) capable of instantaneous, final, direct, peer-to-peer, offline transactions; and

(iii) capable of being distributed directly to, and owned, held, and used directly by, the general public.

(B) At least two technologies selected for Proof-of-Concept Pilots shall be based on secured hardware-based architectures for the purposes of creation, distribution, holding, and payment that do not involve any common or distributed ledger.

(C) At least one technology selected for Proof-of-Concept Pilots shall include a stored-value or pin card option for storage and payment of e-cash.

(D) At least one technology selected for Proof-of-Concept Pilots shall include a cell phone or SIM card option for storage and payment of e-cash.

(E) All technologies selected for Field Test Pilots shall have or at a minimum be capable of incorporating stored-value card functionality.

(5) SPECIAL TENDER AUTHORITY.—In order to facilitate and promote the effectiveness of the pilot programs, the Secretary may grant special recognition of prototypical e-cash instruments issued under a pilot program as legal tender, and direct the Board of Governors of the Federal Reserve System, other departments, branches, agencies, and instrumentalities of the United States Government, any

other federally regulated financial institution to accept such prototypical e-cash instruments in settlement of outstanding obligations on an at-par basis.

(6) REPORTING.—Not later than 180 days after the date on which each phase of the pilot programs terminates, the Secretary shall submit to Congress a report regarding that phase of the pilot programs, which shall—

(A) include—

(i) a description of which elements of the pilot programs were successful and which were unsuccessful;

(ii) recommendations regarding legislative changes to the pilot programs and related authority under this Act and elsewhere; and

(iii) recommendations for additional pilots and revisions to the pilot program; and

(B) make the nonsensitive analytical data available for public review and comment.

SEC. 5. DIGITAL DOLLAR COUNCIL.

(a) IN GENERAL.—The Secretary shall establish the Digital Dollar Council (in this section referred to as ''the Council'') to coordinate the Secretary's ECIP-related ac-

tivities with the efforts of other bureaus of the Department of the Treasury and other departments, branches, agencies, and instrumentalities of the United States Government, including the Board of Governors of the Federal Reserve System and the United States Postal Service.

(b) MEMBERSHIP.—The Council shall be comprised of the Secretary, the Director of ECIP, the Chairman of the Board of Governors of the Federal Reserve System, the Postmaster General of the United States Postal Service, the Director of the Office of Science and Technology Policy, the Chief Technology Officer of the United States, and the Director of the National Institute of Standards and Technology, and any other Federal employees or representatives of Federal agencies as the Secretary, in the Secretary's discretion, determines to be appropriate.

(c) LEADERSHIP.—The head of the Council shall be the Secretary, however, the Secretary may, at the Secretary's discretion, delegate administrative and decision-making responsibility to the Director.

(d) AUTHORITY.—The Council shall have the power to redeploy personnel and resources among the various participating agencies, as well as establish or amend any rules and regulations promulgated by any participating agencies to the extent the Council determines such actions

to be necessary to achieve the goals and objectives established under this Act.

(e) JURISDICTION.—Nothing in this section shall be construed as taking away any powers heretofore or otherwise vested by law in the Secretary, and wherever any power vested in the Council appears to conflict with the powers vested in the Secretary under this Act, such powers shall be exercised subject to the supervision and control of the Secretary.

(f) JOINT REPORT.—Beginning 180 days after the date of enactment of this Act, and each 180 days thereafter, the Council and the National Institute for Standards and Technology shall issue a joint report to the Congress detailing a plan to achieve full interoperability with existing public and private payments systems within 1 year.

SEC. 6. MONETARY PRIVACY BOARD.

(a) IN GENERAL.—There is established a Monetary Privacy Board (in this section referred to as ''the Board'').

(b) MEMBERSHIP.—

(1) IN GENERAL.—The Board shall be comprised of 5 members, appointed by the President, by and with the advice and consent of the Senate.

(2) CHAIR.—The President shall appoint one member of the Board as the Chair of the Board. Ex-

cept as provided under subsections (c) and (e), the Chair shall—

(A) make all decisions of the Board with respect to staffing, hiring, and budget allocation; and

(B) conduct the meetings of the Board.

(3) TERM.—The term of each member of the Board is 3 years.

(4) REMOVAL.— The President may remove a member of the Board from office. On removal, the President shall send a message to the Senate giving the reasons for removal.

(5) INTERIM MEMBERS.—When a vacancy on the Board remains open for more than three months, the President may appoint an interim member to fill that vacancy. Interim members shall enjoy the full powers and privileges of a full member until such time as a permanent member is appointed and confirmed.

(c) MEMBER OFFICES.—Each member of the Board shall be entitled to spend 5 percent of the budget of the Board on the personal office and staff of the member.

(d) DUTIES AND POWERS.—

(1) IN GENERAL.—The Board shall review the actions and decisions of the Secretary, the Director

of ECIP, and ECIP generally on an ongoing basis to evaluate the extent to which their decisions are consistent with their statutory responsibilities under this Act, and more broadly, a general commitment to preserving the privacy interests of individuals and actors that use e-cash and other forms of digital dollar technologies issued or administered by the United States government.

(2) SEMI-ANNUAL REPORT.—The Board shall issue a report to Congress no less than twice per year—

(A) detailing its findings from its ongoing review process;

(B) providing an assessment of the general state of monetary privacy in the United States; and

(C) offering recommendations for how to better protect civil liberties and individual privacy interests through legislative and regulatory reform.

(3) INTERIM REPORTS.—The Board, or one or more members thereof, may publish interim reports or any other communication at any time at their discretion, provided such reports and communications are clearly distinguished from the reports required

under paragraph (2), and the particular authors and co-signatories are clearly indicated.

(e) FUNDING AUTHORITY.—The Board shall submit an annual budget request to the Secretary, and the Secretary shall transfer the requested amount to the Board, using the authorities provided under section 7(b), unless the Secretary determines that the amount is unreasonable in light of the Board's duties and powers under this Act.

SEC. 7. ENABLING AUTHORITY.

(a) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated such sums as may be necessary to carry out this Act.

(b) FINANCING.—

(1) FUND ACCOUNT.—The Federal Reserve Bank of New York shall establish a new account on behalf of the Secretary, called the ''Treasury Electronic Currency Innovation Fund Account'' (in this section referred to as the ''Fund Account'').

(2) USE OF FUND ACCOUNT.—The Secretary shall effectuate any and all spending under this Act by drawing an overdraft on the Fund Account, which shall be accommodated and facilitated automatically, on an indefinite basis, and without the imposition of any interest charge or other form of maintenance or overdraft fees by the Federal Re-

serve Bank of New York and the Board of Governors of the Federal Reserve System.

(3) OVERDRAFT TREATMENT.—The Fund Account shall be exempt from any overdraft prohibitions that currently apply to other accounts administered on behalf of the Department of the Treasury Department by the Federal Reserve System or a Federal reserve bank, and any overdraft liability incurred by the Department of the Treasury shall not be included in calculations of public debt subject to limit under section 3101 of title 31, United States Code.

(4) TREATMENT OF LOSSES.—The Federal Reserve Bank of New York shall record any losses incurred as a result of spending undertaken on behalf of the Secretary from the Fund Account as a deferred asset (as described in section 11.96 of the Financial Accounting Manual for Federal Reserve Banks, as in effect on the date of the enactment of this Act) and shall be excluded from calculations of the net operating position or consolidated balance sheet of the Federal Reserve Bank of New York or the Federal Reserve System, so as to not reduce or impact the calculation of total income or revenue generated by the Federal Reserve System, or other-

wise reduce the total amount of net operating profits to be made available for remittance to the Treasury on an ongoing basis.