

An Early Look into Virtual Currency Regulatory Data

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Views expressed in this presentation are those of the speaker(s) and not necessarily of the Office of Financial Research.

- The current digital asset regulatory framework is fragmented at best, with digital asset platforms operating mainly as money service businesses (MSBs).
- However, many offer services that resemble those of broker-dealers, custodians, and even deposit-taking institutions, raising the question of whether their activities are appropriately ring-fenced and risks adequately managed.
- These entities show a strong tendency toward market concentration: the top few players accounted for more than 90% of transactions and more than \$200 billion of custodial assets at the end of 2021.
- Little is known about their risk management and liquidity positions. Current reporting requirements also provide little visibility into the exposure of traditional financial markets to digital assets. These data gaps are a worrisome source of vulnerability.

Part 1: How are digital asset platforms regulated?

Part 2: What do we know about the size and financial health of these intermediaries?

Part 3: How should/could these entities be regulated?

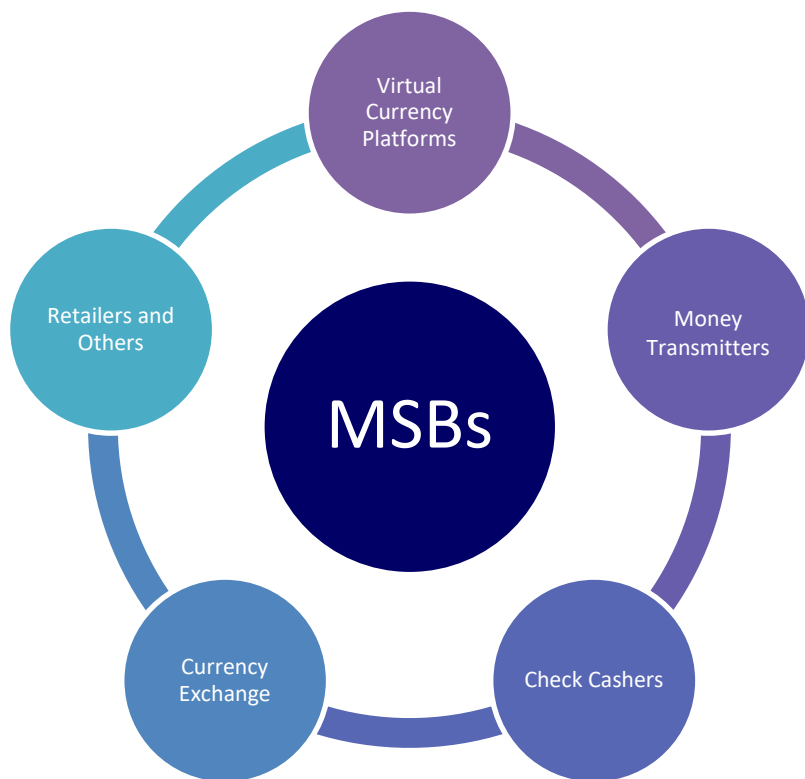
Platforms and other intermediaries perform many different functions:

- **Order book:** Platform that uses a trading engine to match buy and sell orders from users based on current market prices.
- **Brokerage service:** Service that lets users buy and sell at prices set by the broker; is a direct counterparty to trades.
- **Assets-held-on-behalf service:** Holds customers' virtual currencies in either segregated or pooled custodial-like arrangements (requires the control of private keys).
- **Depository-like activity:** Allows customers to hold digital assets in staking or pooled lending agreements, typically with the promise of an attractive interest rate, while issuing loans in digital assets via use of these deposits.

- In the United States, cryptocurrencies and digital assets are considered “convertible virtual currency” (CVC) under the Financial Crimes Enforcement Network’s (FinCEN) regulations.
- Under this regulatory framework, all intermediaries that offer trading of CVCs must register as money services businesses (MSBs) with FinCEN.
- MSB regulation focuses primarily on requiring these companies to comply with regulations on anti-money laundering and countering the financing of terrorism (AML/CFT).

“It appears that many of the U.S.-based cryptocurrency trading platforms have elected to be regulated as money-transmission services. Traditionally, from an oversight perspective, these predominantly state-regulated payment services have not been subject to direct oversight by the SEC or the CFTC. ... In short, the currently applicable regulatory framework for cryptocurrency trading was not designed with trading of the type we are witnessing in mind.”

– Former SEC Chairman Jay Clayton



Current Regulatory Framework

- Regulated and licensed at the state level.
- 49 states have legal frameworks for MSB, of which 37 require regular reporting of the MSB Call Report.
- Other states may collect their own data.

Applicable Federal Regulations

- Anti-Money Laundering Regulation and the Bank Secrecy Act.
- Remittance Regulation in accordance with CFPB.

- Instituted by the Nationwide Multistate Licensing System (NMLS) and the Conference of State Bank Supervisors (CSBS), the MSB Call Report was developed to enhance and standardize the information available to state regulators concerning the activities of their MSB licensees. Data from 2017-present.

Section	Name	Data Level	Data Period	Submission	Due
I.	Financial Condition Report	Company	Quarter	Required	45 Days After End of Each Quarter
II.(a)	Company-wide Transactions Detail	Company	Quarter	Required	45 Days After End of Each Quarter
II.(b)	State Transactions Detail	State	Quarter	Required	45 Days After End of Each Quarter
III.	Permissible Investments Report	Company	Quarter	Required for licensees engaged in money transmission, payment instrument, stored value, virtual currency, and other relevant business activities.	45 Days After End of Each Quarter
IV.(a)	Company-wide Transactions Destination Country Detail	Company	Annual	Required for licensees engaged in foreign money transmission Activity.	45 Days After End of the Fourth Quarter
IV.(b)	State Transactions Destination Country Detail	State	Annual	Optional requirement for licensees engaged in foreign money transmission activity.	45 Days After End of the Fourth Quarter

Contains detailed data on:

- **Assets:** Virtual Currency Assets (“virtual currency held and solely controlled by the company”)
- **Liabilities:** Outstanding Virtual Currency Liabilities, Virtual Currency Balance Held on Behalf of Customers
- **Transaction Details:** Total # and \$ of Virtual Currency to Virtual Currency Transactions, U.S. Dollar to Virtual Currency Transactions, Virtual Currency to U.S. Dollar Transactions, and Virtual Currency Exchange Transactions
- **Permissible Investments:** Total Cash on Hand, Investments Rated A or Above, Investments Rated BBB or Lower, Investments in U.S. Treasury Securities, and Other Investments
- **Revenues & Expenses:** Income Statement, Sources of Income, Expenses, and Breakdown of Expenses

The dataset we analyze contains 79 companies spanning 2017 Q1 to 2021 Q4.

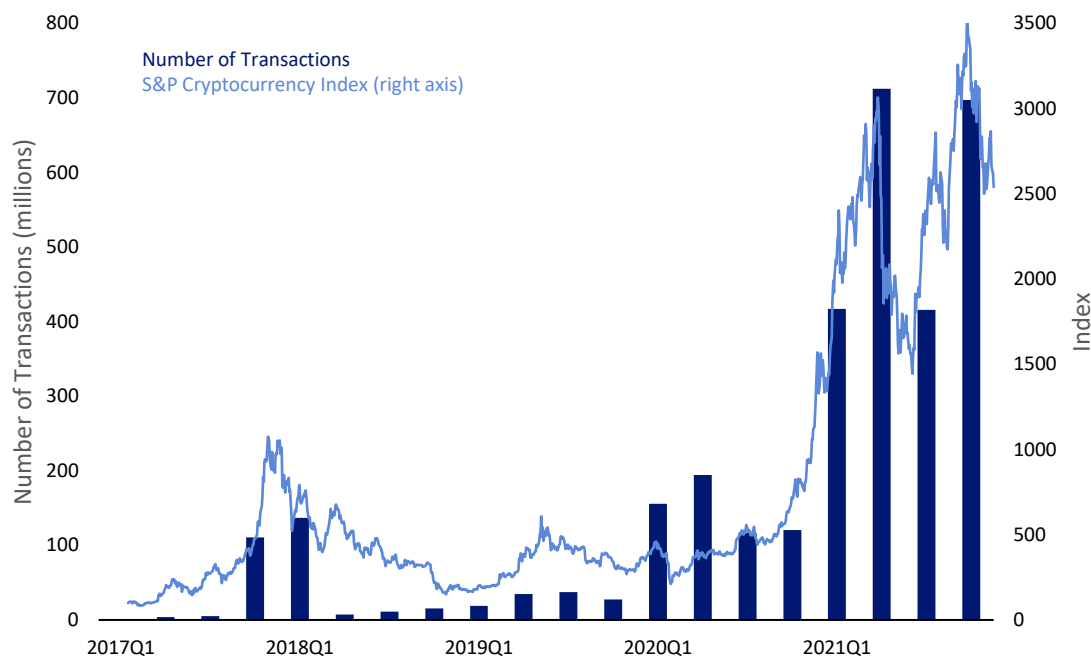
We aggregate the data and generate several stylized facts:

- Digital asset activities experienced rapid growth in 2021.
 - Activities may be correlated to price growth.
- Transactions between virtual currencies account for about half of all transactions.
- Regulatory data only captures a fraction of global digital asset trading activities.
 - Roughly 10% of global trading volume.
- Virtual currency trading exhibits a high degree of concentration among the top few intermediaries.
 - Companies in the top quartile account for more than 96% of all activity reported in 2021 Q4: around \$438B.

Part 2: Size and Scope of Virtual Currency MSBs



Total Virtual Currency Activities (number of transactions, index)



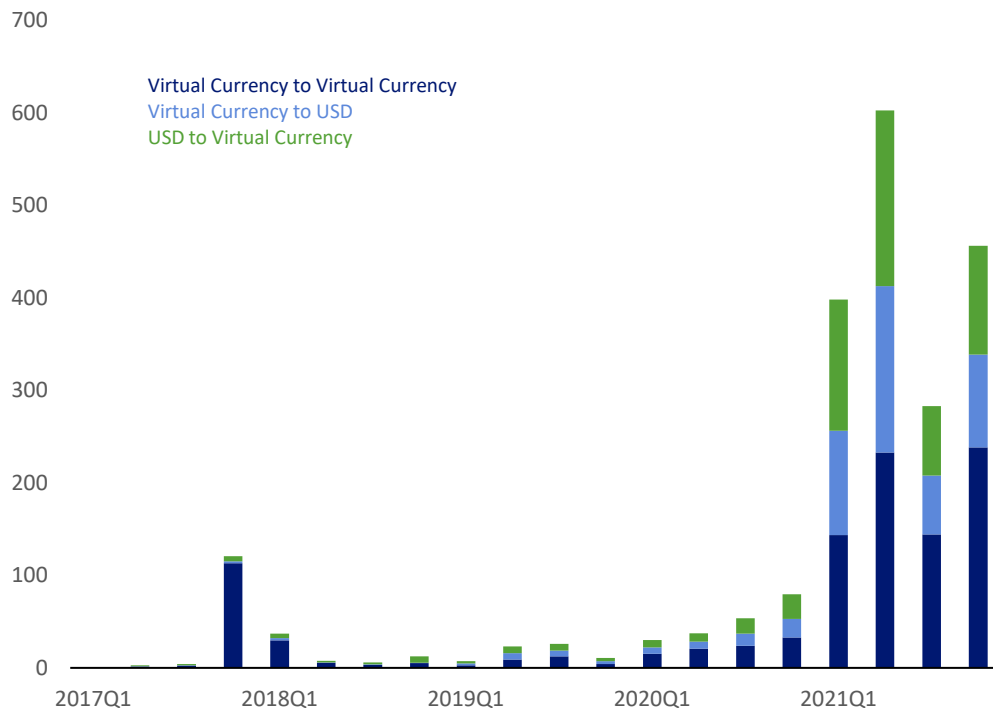
Note: The S&P Cryptocurrency LargeCap Index reflects the largest and most liquid cryptocurrencies into one index that is weighted by the equivalent of market capitalization for cryptocurrencies (coin supply multiplied by coin price). The index equals 100 at February 28, 2017.
Sources: MSB Call Report, S&P Cryptocurrency Index Series, Office of Financial Research

- Virtual Currency activities experienced rapid growth in 2021.
- In 2021, virtual currency companies reported a total of \$1.7 trillion in activities conducted via 2 billion transactions.
- Focusing on 2021 Q4, the total dollar amount of virtual currency transactions was \$456.3 billion, with the mean company reporting an amount of \$7 billion in transactions.

Part 2: Size and Scope of Virtual Currency MSBs



Virtual Currency Activities by Transaction Type (\$ billions)



Note: Virtual currency to virtual currency transactions include those in which the company is either a buyer or seller, as well as those in which the company is neither the buyer or seller but merely provides order matching to facilitate the exchange.

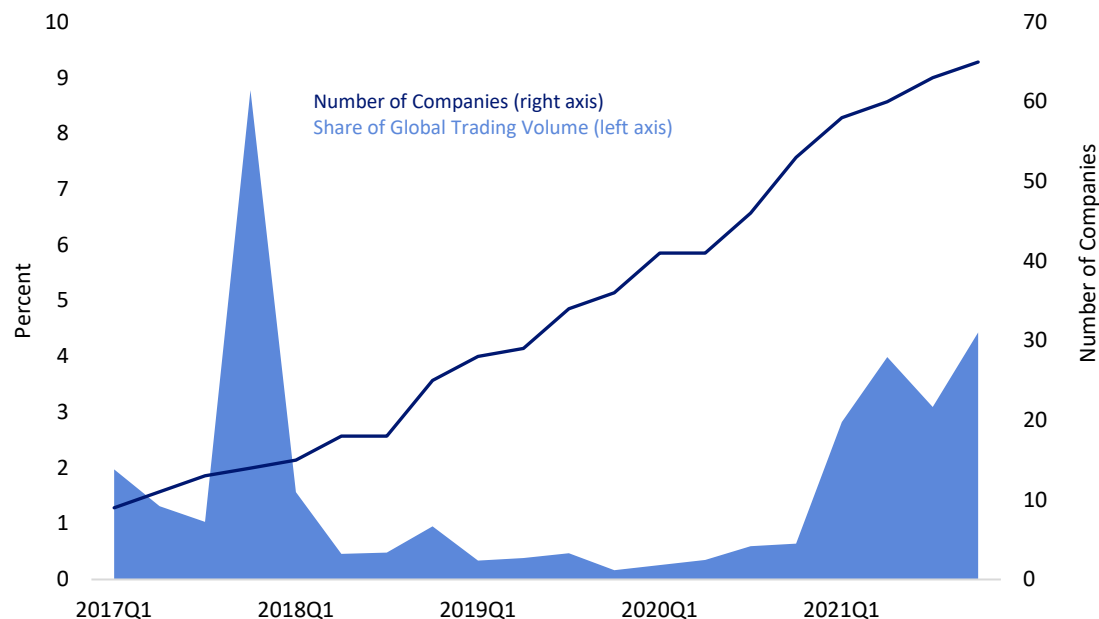
Sources: MSB Call Report, Office of Financial Research

- On average, Virtual Currency to Virtual Currency transactions account for about 50% of all transactions.
- USD to Virtual Currency account for about 30%, VC to USD account for the rest.

Part 2: Size and Scope of Virtual Currency MSBs



Number of Companies and Share of Global Trading Volume



Note: Share of global trading volume is calculated as the total dollar amount of virtual currency transactions as a percentage of total global trading volume for each quarter.

Sources: MSB Call Report, Coinmarketcap.com, Office of Financial Research

- In late 2017, the share of global trading volume in our data set peaked at roughly 9% of global volume.
- Despite the number of companies growing at a steady pace, their share of transaction volume declined to less than 1% and then grew to roughly 4% by 2021.
 - Decentralized finance?
 - Off-shore operations?

Part 2: Size and Scope of Virtual Currency MSBs



Virtual Currency Transaction Volume and Assets by Quartiles (\$ millions)

	VC Transaction Volume				VC Assets			
	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile
2021Q1	\$65.93	\$942.59	\$13,782.33	\$383,478.10	\$6.39	\$89.50	\$7,953.42	\$6,852.29
2021Q2	\$44.92	\$1,276.22	\$10,174.06	\$591,126.03	\$49.27	\$48.41	\$3,840.34	\$6,694.80
2021Q3	\$32.40	\$990.78	\$9,620.05	\$272,400.17	\$54.00	\$80.79	\$2,303.67	\$6,206.17
2021Q4	\$28.36	\$1,033.38	\$16,535.94	\$438,799.73	\$46.42	\$92.83	\$5,449.76	\$10,971.63

Note: Quartiles are determined each quarter by the total dollar amount of virtual currency activities reported.

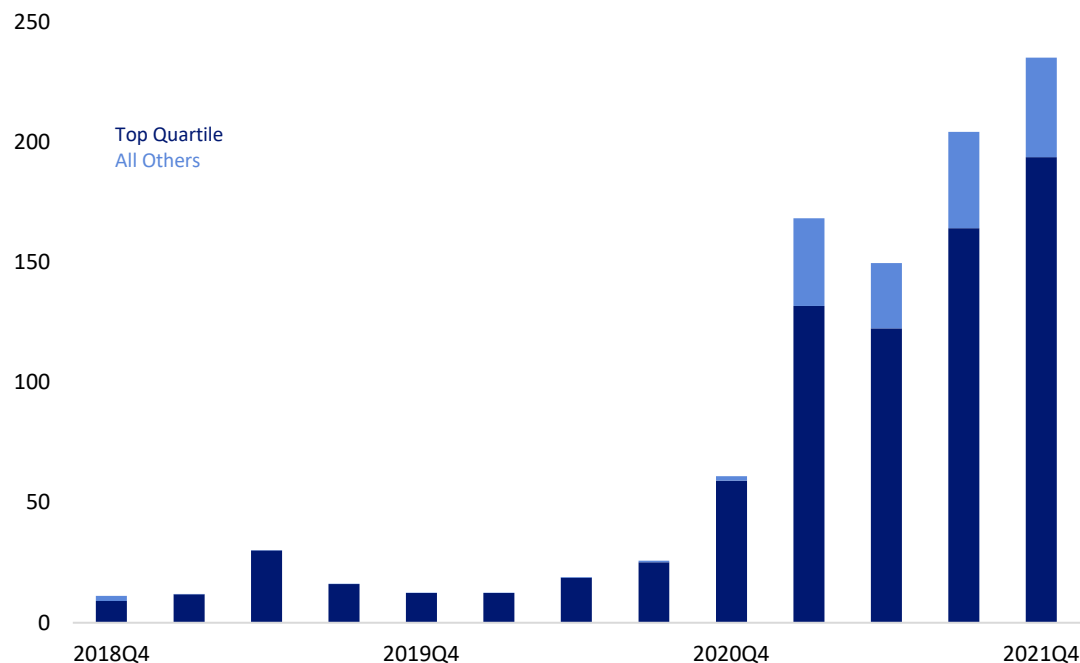
Sources: MSB Call Report, Office of Financial Research

- Top quartile accounts for large shares of virtual currency transactions.
- Still dominant for assets, but not as much.
- Results are in line with external sources:
 - FSB Report
 - Makarov & Schoar (2021)

Part 2: Size and Scope of Virtual Currency MSBs



Virtual Currency Held on Behalf of Customers (\$ billions)



Note: Quartiles are determined each quarter by the total dollar amount of virtual currency activities reported.

Sources: MSB Call Report, Office of Financial Research

- High degree of market concentration in virtual currency held on behalf of customers.
- Rapid growth in this space – \$50B in 2020 Q4 jumped to \$235B 2021 Q4.
- Of this \$235b, top quartile held \$193B.
- Smaller firms also began to hold significant amounts since 2021.

Part 3: How should they be regulated?



Do they look like Traditional MSBs?

	Virtual Currency Exchanges - All		Virtual Currency Exchanges - Top Quartile		Traditional MSBs - All		Traditional MSBs - Top Quartile	
	% Total	Average \$ millions	% Total	Average \$ millions	% Total	Average \$ millions	% Total	Average \$ millions
Permissible Investments								
Total Cash on Hand	71.95%	\$ 967.69	86.71%	\$ 3,410.02	65.57%	\$ 77.32	71.95%	\$ 276.24
Investments (A)	18.05%	\$ 242.70	10.86%	\$ 427.16	23.41%	\$ 27.61	21.36%	\$ 82.01
Investments (BBB)	0.00%	\$ -	0.00%	\$ -	1.37%	\$ 1.62	0.88%	\$ 3.37
Investments (U.S. Treasuries)	9.91%	\$ 133.23	2.33%	\$ 91.76	6.36%	\$ 7.49	5.63%	\$ 21.61
Other Investments	0.10%	\$ 1.31	0.09%	\$ 3.58	0.16%	\$ 0.19	0.19%	\$ 0.73
Virtual Currency								
Virtual Currency Held on Behalf of Customers	98.04%	\$ 3,619.74	98.87%	\$ 12,119.91	7.44%	\$ 0.01	0.00%	\$ -
Virtual Currency Not Held on Behalf of Customers	1.89%	\$ 69.69	1.13%	\$ 138.79	91.12%	\$ 0.07	0.00%	\$ -
Other Virtual Currency Investments	0.08%	\$ 2.85	0.00%	\$ 0.11	1.45%	\$ 0.00	0.00%	\$ -

Source: MSB Call Report, Office of Financial Research

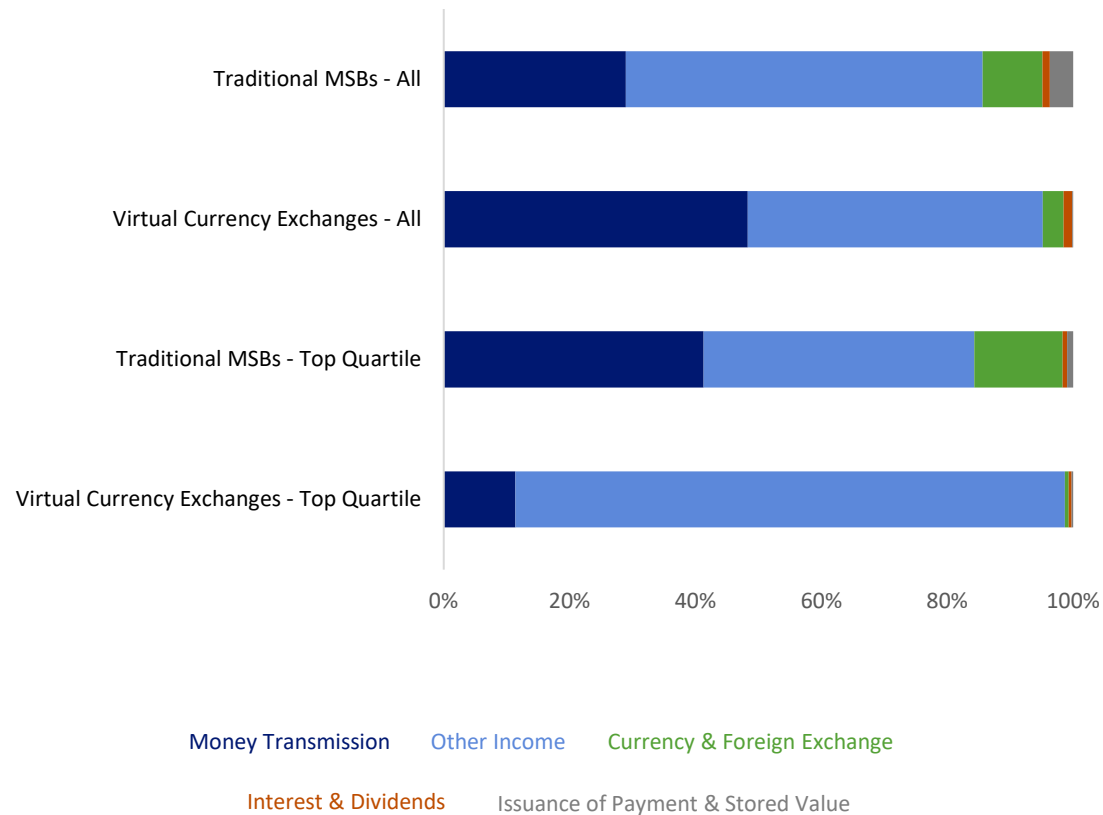
What exactly are these companies?

- These companies' regulatory filings look remarkably different than the ones filed by “traditional” MSBs – particularly top quartiles.
 - If they're not MSBs, then what are they?
 - Are they custodian institutions? Banks? Broker-dealers?
- **Short answer:** Can be argued for all of the above, or a combination.
- We do some qualitative work by collecting data on self-classification as well as services offered by companies in our sample.
 - We also present some data aggregates using these classifications.
 - And we go into detail about key differences, data gaps, and financial stability concerns.

Part 3: How should the be regulated?



Sources of Revenue in 2021 Q4 (%)



Note: For virtual currency exchanges, the top quartile is determined by the total dollar amount of virtual currency activities reported. For traditional MSBs, the top quartile is determined by the total dollar amount of money transmission activities reported.

Sources: MSB Call Report, Office of Financial Research

- **MSB Call Report provides some early insight into the scope of activities conducted by digital asset platforms**
 - Activities are relatively large, in line with findings in the literature.
- **Also provides balance sheet data – useful for future research projects**
 - Preliminary work: stress testing, crypto winter.
- **Significant data gaps are still present – difficult to assess the risks these digital asset intermediaries may pose to financial stability.**
 - Aggregate data, reported quarterly.
 - Data on the use of digital assets “deposits.”
 - Data to assess and regulate credit risk.
 - Institutional investment.
 - MSB Call Report doesn’t cover all of the states.
 - Decentralized exchanges/finance.