A Proposed Revision of CCO Financial Instruments / Value

1. Introduction

This paper advances a roles-first reconstruction of the Common Core Ontology (CCO) treatment of finance and proceeds in four stages. First, it diagnoses the limitations of the prior definition of Financial Instrument, which builds in artifactuality, exchangeability, and legal sanction. Those constraints misclassify central cases such as shell monies, savings bonds not designed for exchange, and extra-legal instruments like prison cigarettes or cryptocurrencies. More importantly, they obscure the social grounding of instrumentality in group-level acceptance and coordinated practice. Second, drawing on canonical coordination failures (exemplified by the double coincidence of wants) and on the broader architecture of financial practices, it articulates revised definitions of Financial Instrument and Financial Value in terms of roles that are externally grounded in social acceptance and realized in coordinated economic acts. This shift preserves BFO/CCO realism about roles and qualities while removing extraneous constraints that belong, if at all, to more specific subclasses. Third, it reorganizes the ontology around Financial Instrument Role, including Medium of Exchange Role, Bond Instrument Role, and Equity Instrument Role; clarifies the placement of Portion of Money and Portion of Currency by restoring legality and standardization at the appropriate level and introduces Property and Property Role to capture the role-based structure of ownership and its realization in acts of ownership. Fourth, it reconstructs the taxonomy of economic processes by replacing Act of Financial Instrument Use with the broader Act of Financial Transaction, and by distinguishing unilateral from reciprocal reallocations. This structure accommodates direct and indirect trading, donation and funding, deposit/withdrawal and loan/repayment sequences, and related patterned activities under a single, coherent scheme. Taken together, these stages yield an ontology that is both BFO/CCO-conformant and allows for connections to domain specific ontologies such as the Financial Industry Business Ontology (FIBO).

2. Financial Instrument

> cco:FinancialInstrument =def. "A Material Artifact that is designed to be a tradeable asset and that is legally sanctioned."

> proposed:FinancialInstrument =def. "A material entity that bears some financial instrument role."

In this section, it is argued that the definition of Financial Instrument itself must be broadened beyond the limits imposed by the current definition. The current definition builds in constraints of artifactuality, exchangeability, and legal recognition that do not accurately capture the entities that are financial instruments within economic systems.

The first objection concerns the requirement that a financial instrument be a material artifact, that is, something designed by an agent to realize a particular function. Many entities that function as financial instruments are not artifacts at all. Spontaneous monetary systems have made extensive use of natural materials such as shell money (seashells used as money), which played established roles in economic exchange without being manufactured or designed for that purpose. This demonstrates that artifactuality cannot be a necessary condition for being a financial instrument.

A second objection addresses the claim that financial instruments must be designed to be tradable assets. Even in cases where the entity is an artifact, its design intention does not always include tradability. E.E. U.S. Savings Bonds are a clear case: although they are artifacts, they are not designed for market exchange. Their function within an economic system is tied instead to long-term debt obligations and repayment structures. Because these objects operate as financial instruments despite their design not being oriented toward or even allowing tradability, exchangeability cannot serve as a defining criterion.

The third objection concerns the requirement that financial instruments be legally sanctioned. Numerous entities serve as financial instruments without any legal recognition. Cigarettes in prison function as currency despite being prohibited, and Bitcoin operates as a medium of exchange in various communities regardless of jurisdictional endorsement. These examples show that legal sanction is neither universal nor necessary for an entity to be used as a financial instrument within an economic system and thus cannot be included as a definitional requirement.

2.1. Financial Instrument Role

> proposed:FinancialInstrumentRole =def. "A role that inheres in a material entity when it is accepted by a group as the means to resolve a financial coordination problem, and, if realized, is realized in an act of resolving said financial coordination problem."

The notion of a financial coordination problem provides the grounding condition for Financial Instrument Role and should be understood as a recurrent, structural impediment to economics and financial transactions among agents that is overcome only when specific roles are recognized and realized by agents and by material entities being used as financial instruments. On this view, the ontology does not treat instrument hood as a matter of intrinsic design or legal status but as a matter of socially accepted roles whose realization removes obstacles to coordination problems such as, exchange, credit, or ownership allocation. This roles-first orientation is consistent with BFO's treatment of roles as realizable and externally grounded.

A canonical instance is the double coincidence of wants. In direct exchange, agents often lack mutually compatible preferences at the same time, and exchange fails unless an intermediary is introduced. The failure is resolved when a material entity is accepted as bearing the medium-of-exchange role, permitting the exchange to be decomposed into coordinated acts—paying and transferring—that realize that role and thereby remove the impediment. The ontological point is that the entity is as a solution in virtue of the role it bears and realizes in those processes, not in virtue of its physical composition or origin.

Financial coordination problems extend beyond exchange mediation to include the difficulties of joint ownership and capital aggregation. Here, the structural question is how to pool resources, distribute control, and allocate residual claims and risk across many contributors. The solution involves entities that bear the financial instrument role characteristic of stock, enabling agents to adopt shareholder and related roles in a way that partitions ownership and governance. Framed ontologically, stock is not defined by medium-of-exchange functionality but by its role in resolving the coordination problem of capital formation and risk distribution; its realization occurs when agents take up the relevant roles and the instrument constrains and channels ownership and control accordingly.

Not every cooperative or administrative decision qualifies as a financial coordination problem in this sense. A group deliberating on how to allocate an internal budget certainly faces coordination demands, but such deliberation does not introduce novel economic coordination difficulties nor necessitate the need for new financial instruments to resolve such problems. Maintaining this boundary preserves the intended scope of Financial Instrument Role and focuses the ontology on those systemic problems whose solutions are, as a matter of economic practice and social acceptance, mediated by financial instruments.

Taken together, these considerations justify defining Financial Instrument Role by reference to the means to resolve a financial coordination problem. Roles are the core explanatory units: they are externally grounded in group acceptance, realized in coordinated economic acts, and borne by material entities that thereby are used as financial instruments. By articulating financial coordination problems as role-necessitating impediments, the account remains squarely within BFO/CCO realism while capturing the structure of modern commercial life.

3. Medium of Exchange

> proposed:MediumOfExchangeRole =def. "A role that inheres in a material entity when it is accepted by a group as a means of indirect trade, and, if realized, is realized in an act of indirect trade."

This definition grounds the medium-of-exchange role in the structural economic problem it is meant to resolve. As discussed earlier, the economist's analysis of the double coincidence of wants identifies a core coordination failure in direct exchange, where two agents must simultaneously possess goods each desires in order for trade to occur. The introduction of a medium of exchange resolves this problem by enabling indirect trade, in which the transaction is decomposed into separate acts and coordinated through the acceptance of a material entity that bears the medium-of-exchange role. The proposed definition thus captures the fact that the role inheres in an entity precisely when a group treats it as the means for resolving this coordination problem, and that its realization occurs when it functions within acts of indirect trade.

> proposed:MediumOfExchange =def. “A Financial Instrument that bears some medium of exchange role.”

The introduction of this class as the proposed parent of Portion of Currency reflects the need to distinguish those material entities that realize the medium of exchange role independently of more specific criteria such as legal sanction or standardization. A suggestion has been made to relabel this term as Material Medium of Exchange. While there is no principled objection to this refinement, the absence of a BFO/CCO-conformant class for immaterial media of exchange, combined with the fact that electronic cash, bonds, and stocks are currently treated as material entities within CCO, indicates that adopting the revised label at this stage would be premature. A clearer and more systematic distinction would require broader updates to the treatment of information-content entities and roles within BFO and deferring the name change avoids creating inconsistencies for users pending those developments.

3.1. Portion of Cash and Portion of Currency

> cco:PortionOfCash: =def "A Financial Instrument that is designed to be a ready medium of exchange."

proposed:PortionOfMoney =def. "A Medium of Exchange which is used by a group as a means of indirect trade."

proposed:PortionOfCurrency =def. "A Portion of Money that is standardized by a legally sanctioned and recognized standardizing organization and used by a group as a means of indirect trade."

The Portion of Money class portion of money replaces the earlier Portion of Cash in that it aligns with the new definitions of Financial Instrument and the Medium of Exchange Role. Its subclass Portion of Currency replaces the earlier formulation by giving currency a more specific characterization grounded in legality and standardization. The earlier definition tied the category to design intention, which does not reliably distinguish currency from other financial instruments. By contrast, the revised definition restores the criteria of legal sanction and organizational standardization at the appropriate level of specificity. This aligns the class with the existing CCO treatment of the Measurement Unit of Currency, whose instances are limited to legally sanctioned national currencies and whose use depends on the authority of an officially recognized standardizing organization.

3.2. Other Financial Instruments and Roles

proposed:Bond =def. "A Financial Instrument which bears the bond Instrument role."

proposed:BondInstrumentRole =def. "A role that inheres in a material entity when it is accepted by a group as a means to secure debts and structure repayment obligations, and, if realized, is realized in acts of loaning and acts of repayment.

proposed:Stock =def. "A Financial Instrument which bears the equity instrument role.

> proposed:EquityinstrumentRole =def. A role that inheres in a material entity when it is accepted by a group as a means of ownership allocation and distribution, and, if realized, is realized in acts of joint ownership and responsibility.

The introduction of Bond Instrument Role and Equity Instrument Role as well as the redefinition of Bond and Stock using these roles follows directly from the revised formulation of Financial Instrument. On the updated account, an entity functions as a financial instrument not because it is an artifact, legally sanctioned, or designed for exchange, but because it bears a financial instrument role whose realization resolves a characteristic financial coordination problem. The new definitions of bonds and stocks apply this same framework to two central categories of financial instruments, thereby integrating them coherently into the revised structure.

The definition of Bond Instrument Role captures the fact that bonds function economically by securing debts and structuring repayment obligations, rather than by mediating exchange or serving as currency. This aligns with the broader shift away from treating financial value as tied to medium-of-exchange capacity and toward grounding value in the ways entities serve as instruments within systems of debt and financial obligation. By defining Bond simply as a financial instrument that bears this role, the ontology reflects the fact that bonds can take many material forms such as paper certificates and electronic entries and yet function uniformly through the role they bear and the acts (loaning, repayment) that realize it.

Similarly, the Equity Instrument Role reflects the coordination problem inherent in ownership allocation and distribution, a structural difficulty in organizing joint contributions, residual claims, and governance within complex enterprises. Stocks do not resolve the double coincidence of wants, nor do they function as media of exchange; their financial value arises from the ownership-structuring role they embody. Defining Stock as a financial instrument that bears the equity instrument role brings the ontology of equity into alignment with the revised account of financial instrumenthood, grounding equity claims in the roles that material entities play in facilitating joint ownership and shared responsibility.

4. Financial Value

> cco:FinancialValue =def. "A quality that inheres in an independent continuant to the degree that that independent continuant can serve as a medium of exchange in an economic system at a particular time."

> proposed:FinancialValue =def. "A quality that inheres in an independent continuant to the degree that that independent continuant can serve as a financial instrument in an economic system."

The original definition characterizes financial value by linking it to an entity's capacity to be a medium of exchange. On this view, the degree to which financial value inheres in an independent continuant is determined by its suitability for the specific economic role of mediating exchange.

The revised definition removes the restriction to the medium-of-exchange role and grounds financial value instead in the broader capacity of an entity to serve as a financial instrument. This reorientation reflects the fact that financial instruments fulfill a wider range of coordination functions in economic systems than exchange-mediation alone and thereby provide a more accurate basis for defining financial value.

The primary objection is that financial value does not necessarily inhere to the degree that a thing can serve as a medium of exchange. The earlier definition implicitly assumes that an entity's financial value tracks its suitability as a medium of exchange, but this is not the case for many financial entities. Stocks and bonds clearly possess financial value, yet they do not function as media of exchange and are not used in the resolution of the double-coincidence-of-wants problem. Their value instead derives from their operation as financial instruments within systems of ownership, debt, and risk distribution. The earlier definition therefore misclassifies central categories of financial entities by tying financial value exclusively to exchange-mediating capacity.

This objection directly motivates the shift to the new definition, which grounds financial value in the degree to which an entity can serve as a financial instrument rather than as a medium of exchange. Because financial instruments encompass a wider set of socially grounded coordination roles—such as enabling debt, distributing risk, recording ownership, or securing repayment—the revised definition accurately captures the kinds of entities that bear financial value in practice. By aligning the definition with the broader financial instrument role, the revised formulation avoids the overly narrow exchange-based constraint and accommodates the full range of entities that participate in financial systems.

The removal of the explicit temporal condition in the definition of Financial Value is similarly motivated by ontological considerations grounded in BFO's treatment of qualities. The earlier formulation tied the existence of financial value to "a particular time," effectively building temporal measurement conditions into the definition of the quality itself. This is inconsistent with how qualities are handled elsewhere in the ontology. Qualities such as mass, weight, color, or conductivity may be measured or evaluated at specific times, but the qualities themselves do not depend on a time index for their existence. They inhere continuously in their bearers as dependent entities, even though their magnitudes may vary, and assessments of those magnitudes are temporally situated processes. By removing the temporal clause, the revised definition restores conformity with this general pattern: financial value is a quality that inheres in an independent continuant regardless of when it is measured or assessed.

4.1. Financial Value of Property

> cco:FinancialValueOfProperty =def. "Financial Value that inheres in an material entity that is the object of an Act of Ownership."
>
> proposed:FinancialValueOfProperty =def "Financial Value that inheres in a material entity that bears the property role."
>
> proposed:Property =def. "A material entity which bears the property role."
>
> proposed:PropertyRole =def. "A material entity which is the object of an act of ownership within an economic system."

This revised definition follows directly from the broadened account of Financial Value, which no longer ties financial value to suitability as a medium of exchange but instead to an entity's capacity to serve as a financial instrument within an economic system. By grounding Financial Value of Property in acts of ownership, the definition fits as a subclass of Financial Value while capturing the way economic systems attribute value to material entities through their connection to financial instruments and the ownership relations in which they participate.

The addition of Property and Property Role follows naturally from the revised framework for Financial Value and Financial Instrument, both of which shift the ontology toward a roles-first account of economic functioning. Under this revised orientation, material entities participate in economic systems not by virtue of intrinsic properties or artifact-based design intentions, but by bearing socially grounded roles that structure agents' interactions with them. Introducing Property Role, defined in terms of being the object of an act of ownership, makes explicit the dependency between ownership practices and the ontological status of property. Because roles in BFO are realized in processes, anchoring Property Role in acts of ownership ensures that property is treated as a realizable dependent continuant whose existence is grounded in socially recognized ownership relations rather than in the material constitution of the bearer.

Establishing the corresponding class Property, defined simply as a material entity that bears the Property Role, provides the stable category needed for representing the things that economic agents own, transfer, or value. This mirrors the structure introduced for financial instruments: just as an entity is a financial instrument in virtue of bearing a financial instrument role, an entity is property in virtue of bearing the property role. The introduction of these two classes therefore brings the ontology of ownership into structural alignment with the revised accounts of financial value and instrumenthood.

5. Acts of Financial Transaction

cco:ActOfFinancialInstrumentUse =def "An Act of Artifact Employment in which some Agent uses some Financial Instrument."

proposed:ActOfFinancialTransaction =def “A Planned Act wherein one or more Agents use some Financial Instrument, goods, or services, in an economic system.”

The former definition relies on the assumption that financial instruments are artifacts, a claim that no longer holds considering the revised definition of Financial Instrument, which now includes material entities that are not artifacts and whose instrumentality is grounded in the roles they bear. Given this change, the earlier framing cannot accommodate the broader range of entities and practices involved in financial activity. A more inclusive account is required. One that covers transactions involving not only financial instruments but also goods and services, particularly since certain transactions, such as donation and direct trade, do not require financial instruments at all. The revised definition therefore situates these activities within a more general category of planned acts involving economic use, providing a coherent parent class under which indirect trade, direct trade, donation, and other economically relevant activities can be uniformly treated.

5.1. Acts of Financial Transferring and Acts of Financial Exchanging

proposed:ActOfFinancialTransferring =def “An Act of Financial Transaction in which one or more Agents intentionally bring about the unilateral reallocation of some Financial Instruments, goods, or services.

proposed:ActOfFinancialExchanging =def “An Act of Financial Transaction in which two or more Agents intentionally bring about reciprocal reallocation of some Financial Instruments, goods, or services.

The introduction of these two subclasses refines the structure of Act of Financial Transaction by distinguishing between those transactions in which resources move unilaterally and those in which they move reciprocally. This distinction is required to capture the fundamental difference between transactions that involve one-directional transfer—such as cases where an agent gives or reallocates goods, services, or financial instruments without receiving anything in return—and those that involve coordinated, mutual reallocation among multiple agents. By situating both acts under the broader category of financial transactions, the ontology is able to represent a wider range of economically significant activities while preserving the structural contrast between unilateral and reciprocal forms of transfer. This conforms to the broader framework developed above, in which financial transactions encompass more than instrument use alone and include the full range of planned acts involving goods, services, and financial instruments, regardless of whether the associated reallocation is one-sided or mutually enacted.

proposed:ActOfDonating =def "An Act of Financial Transferring wherein Financial Instruments or goods are transferred by an Agent (the Donor) to another Agent (the Recipient) without return consideration."

proposed:ActOfFunding =def "An Act of Financial Transferring in which an Agent (the Funder) provides some Financial Instrument to another Agent (the recipient of the funds) as a resource pool that is earmarked by the Funder for a future transaction."

Both of these definitions introduce subclasses of Act of Transferring that refine the structure of unilateral financial transactions by identifying distinctive cases in which goods or financial instruments move from one agent to another without any reciprocal reallocation. In Act of Donating, the transfer is characterized by the absence of return consideration. In Act of Funding, the transfer is likewise unilateral and without return consideration but is distinguished by the fact that the receiving agent has sought out the sum of money for a specified purpose (for example scholarships).[3]

proposed:ActOfFinancialDeposit =def "An Act of Financial Transferring wherein a Financial Instrument is transferred by an Agent (the Depositor) to another Agent to create a liability to be repaid to the Depositor through an Act of Financial Withdrawal."

proposed:ActOfFinancialWithdrawl =def "An Act of Financial Transferring wherein a Financial Instrument is transferred by an Agent to another Agent (the Depositor) from an account created by an earlier Act of Financial Deposit performed by the Depositor."

proposed:ActOfLoaning =def "An Act of Financial Transferring wherein a Financial Instrument is given by an Agent (the Creditor) to another Agent (the Debtor) in order to receive Repayments from the Debtor which are of greater Financial Value."

proposed:ActOfRepayment =def "An Act of Financial Transferring wherein a Financial Instrument is transferred by an Agent (the Debtor) to another Agent (the Creditor) to decrease the amount the Debtor owes to the Creditor from an earlier Act of Loaning."

These four classes present a clear structural challenge for placement within the ontology. Each is unilateral when considered in isolation: a deposit event is initiated by a single agent; a withdrawal event is likewise unilateral; and the same holds for loaning and repayment. Yet in each pair, the two acts are temporally and conceptually linked, such that one cannot occur except as the counterpart of an earlier event. No withdrawal can exist without a prior deposit, and no repayment can exist without an antecedent act of loaning. In other words, the ontology must accommodate both their unilateral character and the fact that they participate in larger patterned sequences of economic activity

This raises the question of whether these classes ought to be grouped under higher-level categories, such as an Act of Banking for deposit and withdrawal, or a combined parent class for loaning and repayment that captures their complementary nature. There are clear conceptual reasons such groupings could be justified: each pair forms a coordinated structure of expectations between agents, and each pair resolves a characteristic kind of financial coordination problem. At the same time, the substantial number of definitional and structural changes already proposed within this paper makes it prudent, for now, to retain the existing placement of each class as a direct subclass of Act of Transferring. This approach maintains ontological stability while leaving open the possibility of later refinement once broader restructuring of financial roles and instrument classes has been completed.

By keeping these acts within the Act of Transferring branch, the ontology continues to represent their core feature—unilateral reallocation—while allowing future work to introduce higher-order organizing classes that capture the temporal and structural interdependence between the members of each pair.

> proposed:ActOfTrading =def "An Act of Financial Exchanging wherein goods and services are exchanged between Agents"

> proposed:ActOfDirectTrading =def "An Act of Trading wherein goods or services are exchanged by an Agent to acquire goods or services from another Agent." (Synonym Act of Bartering)

> cco:ActOfPurchasing =def "An Act of Financial Instrument Use wherein a Financial Instrument is used by an Agent (the Purchaser) to acquire a good or service from another Agent (the Provider)."

> proposed:ActOfIndirectTrading =def "An Act of Trading wherein a Financial Instrument is used as a Medium of Exchange by an Agent (the Purchaser) to acquire goods or services from another Agent (the Provider)." (Formerly and synonymous with Act of Purchasing)

These definitions differentiate two fundamental forms of trading: direct trading, in which agents exchange goods or services without any intermediary, and indirect trading, in which a medium of exchange is introduced to resolve the double coincidence of wants and structure the exchange through the use of a financial instrument. Taken together, they allow Act of Trading to serve as a unified parent class covering both barter and mediated exchange within a single ontological framework. A concern naturally arises that, at present, no additional subclasses of Act of Exchanging besides Act of Trading have been identified, raising the possibility that the parent class may be redundant. However, given the ongoing development of the ontology and the likelihood that other reciprocal reallocation processes will emerge as analysis progresses, it is reasonable to retain Act of Trading as a subclass of Act of Exchanging for now. This approach preserves conceptual clarity while maintaining the flexibility needed to incorporate new forms of exchange as they are identified and formally defined. For example, gift giving might be an act of transferring, but the common practice of gift exchanges would be an act of exchanging.

> ActOfBuying =def "An Act of Indirect Trading wherein a Financial Instrument is used as a Medium of Exchange by an Agent (the Buyer) to acquire ownership of a good from another Agent (the Seller)."

> ActOfRemuneration =def "An Act of Indirect Trading wherein a Financial Instrument is used as a Medium of Exchange by an Agent (the Employer) to compensate another Agent (the Employee) for the services they perform for the Employer."

> ActOfRenting =def "An Act of Indirect Trading wherein a Financial Instrument is used as a Medium of Exchange by an Agent (the Renter) as a payment to acquire temporary possession or use of a good or property that is owned or controlled by another Agent (the Seller)."

Finally, these definitions represent the natural subclasses of Act of Indirect Trading that emerge from replacing the prior CCO category of Act of Purchasing with a broader and more structurally accurate account of indirect trade. Each subclass specifies a distinct economic outcome realized through the use of a financial instrument functioning as a medium of exchange: the acquisition of ownership in the case of buying, the fulfillment of compensatory obligations in remuneration, and the acquisition of temporary possession or use in renting. All three retain the essential structure of indirect trading—mediated exchange through a recognized medium—while differentiating the types of goods, services, or property relations that result from the act. Their placement as subclasses of Act of Indirect Trading is therefore preserved, as each continues to fit the revised definitions without modification and captures the corresponding patterns of mediated exchange within an economic system.

6. Conclusion

Recasting instrumenthood and value in terms of role realization produces a more accurate and less restrictive ontology of finance. The earlier framework treated Financial Instruments as entities that were artifacts, designed for exchange, and legally sanctioned. These criteria excluded many central cases and failed to capture the fact that instrumenthood arises through social acceptance and coordinated economic practice. The revised approach removes these unnecessary restrictions and accommodates both intentionally designed instruments and those that emerge informally within economic communities. As a result, shell monies, non-tradable savings bonds, cigarettes used as currency in prisons, cryptocurrencies, stocks, and bonds can all be represented within a single BFO-conformant framework. This provides a more faithful account of the variety of ways entities can function as financial instruments.

A similar correction is made to the definition of Financial Value. The earlier definition tied financial value to an entity's suitability as a medium of exchange, which excluded major categories of financial instruments that do not mediate exchange. It also introduced a temporal index that conflicted with BFO's general treatment of qualities. The revised definition replaces these constraints by grounding financial value in the broader capacity of an entity to serve as a financial instrument of any kind. This change recognizes that financial systems rely on many distinct forms of instrumentality, including the structuring of debt, the allocation of ownership, the distribution of risk, and the mediation of exchange. Financial value therefore inheres in relation to these diverse roles rather than in a single exchange-based function.

The revised taxonomy of financial transactions reflects the same increase in generality. It distinguishes unilateral from reciprocal reallocations and accounts for patterned sequences such as deposit and withdrawal or loan and repayment. This structure accommodates a wider range of financial activities without relying on assumptions about artifact design or legal status. At the same time, it preserves the conceptual stability needed for future extensions, such as the treatment of immaterial representations and the potential introduction of higher-level categories such as Act of Banking.

Taken together, these revisions produce a more comprehensive and explanatorily powerful account of financial instruments and financial value. By removing overly narrow constraints and grounding the ontology in socially realized roles, the financial branch of CCO becomes more descriptively adequate, more interoperable, and more closely aligned with the actual structure of contemporary economic life.

Appendix A: Changes to Existing Terms

Term	**Current Definition**	**Proposed Definition**
FinancialInstrument	A Material Artifact that is designed to be a tradeable asset and that is legally sanctioned.	A Financial Instrument that bears some financial instrument role.
FinancialValue	A quality that inheres in an independent continuant to the degree that that independent continuant can serve as a medium of exchange in an economic system at a particular time.	A quality that inheres in an independent continuant to the degree that that independent continuant can serve as a financial instrument in an economic system.
FinancialValueOfProperty	Financial Value that inheres in an material entity that is the object of an Act of Ownership.	Financial Value that inheres in a material entity that is the object of an act of ownership within an economic system.

PortionOfMoney (PortionOfCash)	A Financial Instrument that is designed to be a ready medium of exchange.	A Medium of Exchange which is used by a group as a means of indirect trade.
ActOfDonating	An Act of financial Instrument Use wherein Financial Instruments or goods are transferred by an Agent (the Donor) to another Agent (the Recipient) without return consideration.	An Act of Financial Transferring wherein Financial Instruments or goods are transferred by an Agent (the Donor) to another Agent (the Recipient) without return consideration.
ActOfFunding	An Act of Financial instrument Use in which an Agent (the Funder) provides some Financial Instrument to another Agent (the recipient of the funds) as a resource pool that is earmarked by the Funder for a future transaction.	An Act of Financial Transferring in which an Agent (the Funder) provides some Financial Instrument to another Agent (the recipient of the funds) as a resource pool that is earmarked by the Funder for a future transaction.
ActOfFinancialDeposit	An Act of Financial Instrument Use wherein a Financial	An Act of Financial Transferring wherein a Financial Instrument

	Instrument is transferred by an Agent (the Depositor) to another Agent to create a liability to be repaid to the Depositor through an Act of Financial Withdrawal.	is transferred by an Agent (the Depositor) to another Agent to create a liability to be repaid to the Depositor through an Act of Financial Withdrawal.
ActOfFinancialWithdrawl	An Act of Financial Instrument Use wherein a Financial Instrument is transferred by an Agent to another Agent (the Depositor) from an account created by an earlier Act of Financial Deposit performed by the Depositor.	An Act of Financial Transferring wherein a Financial Instrument is transferred by an Agent to another Agent (the Depositor) from an account created by an earlier Act of Financial Deposit performed by the Depositor.
ActOfLoaning	An Act of Financial Instrument Use wherein a Financial Instrument is given by an Agent (the Creditor) to another Agent (the Debtor) in order to receive Repayments from the Debtor	An Act of Financial Transferring wherein a Financial Instrument is given by an Agent (the Creditor) to another Agent (the Debtor) in order to receive Repayments from the Debtor

	which are of greater Financial Value.	which are of greater Financial Value.
ActOfRepayment	An Act of Financial Instrument Use wherein a Financial Instrument is transferred by an Agent (the Debtor) to another Agent (the Creditor) to decrease the amount the Debtor owes to the Creditor from an earlier Act of Loaning.	An Act of Financial Transferring wherein a Financial Instrument is transferred by an Agent (the Debtor) to another Agent (the Creditor) to decrease the amount the Debtor owes to the Creditor from an earlier Act of Loaning.
ActOfIndirectTrading (ActOfPurchasing)	An Act of Financial Instrument Use wherein a Financial Instrument is used by an Agent (the Purchaser) to acquire a good or service from another Agent (the Provider).	An Act of Trading wherein a Financial Instrument is used as a Medium of Exchange by an Agent (the Purchaser) to acquire goods or services from another Agent (the Provider).
ActOfBuying	An Act of Purchasing wherein a Financial Instrument is used as a Medium of Exchange by an Agent (the Buyer) to acquire	An Act of Indirect Trading wherein a Financial Instrument is used as a Medium of Exchange by an Agent (the Buyer) to acquire ownership of

	ownership of a good from another Agent (the Seller).	a good from another Agent (the Seller).
ActOfRemuneration	An Act of Purchasing wherein a Financial Instrument is used as a Medium of Exchange by an Agent (the Employer) to compensate another Agent (the Employee) for the services they perform for the Employer.	An Act of Indirect Trading wherein a Financial Instrument is used as a Medium of Exchange by an Agent (the Employer) to compensate another Agent (the Employee) for the services they perform for the Employer.
ActOfRenting	An Act of Purchasing wherein a Financial Instrument is used as a Medium of Exchange by an Agent (the Renter) as a payment to acquire temporary possession or use of a good or property that is owned or controlled by another Agent (the Seller).	An Act of Indirect Trading wherein a Financial Instrument is used as a Medium of Exchange by an Agent (the Renter) as a payment to acquire temporary possession or use of a good or property that is owned or controlled by another Agent (the Seller).
Banknote	A Portion of Cash that consists of portable slips of paper or	A Portion of Currency that consists of portable slips of

	fabric used to bear some specified Financial Value.	paper or fabric used to bear some specified Financial Value.
Coin	A Portion of Cash that consists of a flat, portable, round pieces of metal used to bear some specified Financial Value.	A Portion of Currency that consists of a flat, portable, round pieces of metal used to bear some specified Financial Value.
ElectronicCurrency	A Portion of Cash that consists of Bytes used to bear some specified Financial Value.	A Portion of Currency that consists of Bytes used to bear some specified Financial Value.

Appendix B: Proposed Terms

Term ID	**Definition**	**Examples**
FinancialInstrumentRole	A role that inheres in a material entity when it is accepted by a group as the means to resolve a financial coordination problem, and, if realized, is realized in an act of resolving said financial coordination problem.	The medium of exchange role which resolves the financial coordination problem of the "double coincidence of wants" as described in economic theory. Financial coordination problems are strucutral economic problems which require the creation or adoption of financial instruments whose role it is to resolve that structural economic problem.
MediumOfExchangeRole	A role that inheres in a material entity when it is accepted by a group as a means of indirect trade, and, if realized, is realized in an act of indirect trade.	The double coincidence of wants is a problem with barter in that it is highly unlikely both parties involved in trade will have items both want. Thus, a medium of exchange (traditionally money) is used to facillitate indirect trade.
BondInstrumentRole	A role that inheres in a material entity when it is accepted by a group as a	Debt and repayment requires a structure to facilitate trust in a financial system. Thus bonds were

	means to secure debts and structure repayment obligations, and, if realized, is realized in acts of loaning and acts of repayment.	instituted to both incentivize and facilitate this.
EquityInstrumentRole	A role that inheres in a material entity when it is accepted by a group as a means of ownership allocation and distribution, and, if realized, is realized in acts of joint ownership and responsibility	In a more complex economy distributed ownership, risk, and responsibility became required for corporate entities and thus equity instruments such as stocks were needed to facilitate this role.
MediumOfExchange	A Financial Instrument that bears some medium of exchange role.	Money or currency are often used as a medium of exchange.
ActOfFinancialTransaction	A Planned Act wherein one or more Agents use some Financial Instrument, goods, or	Any economic transaction.

	services, in an economic system.	
ActOfFinancialTransferring	An Act of Financial Transaction in which one or more Agents intentionally bring about the unilateral reallocation of some Financial Instruments, goods, or services.	Donation or funding are examples of financial transferrring.
ActOfFinancialExchanging	An Act of Financial Transaction in which two or more Agents intentionally bring about reciprocal reallocation of some Financial Instruments, goods, or services.	Trade is the most common example of Financial Exchanging.
PortionOfCurrency	A Portion of Money that is standardized by a legally sanctioned and recognized standardizing organization and used	This captures the fiat currencies and aligns with the CCO:MeasurementUnitOfCurrency list of currencies.

	by a group as a means of indirect trade.	
ActOfTrading	An Act of Financial Exchanging wherein goods and services are exchanged between Agents.	Any and all acts of trade.
ActOfDirectTrading	An Act of Trading wherein goods or services are exchanged by an Agent to acquire goods or services from another Agent.	Synonymous with bartering. Any act in which goods and/or services are directly exchanged.
Property	A material entity which bears the property role.	Those things which are commonly understood to be owned or able to be owned.
PropertyRole	A material entity which is the object of an act of ownership within an economic system.	The role which allows things to be economic property.

Appendix C: Updated Hierarchy

Financial Occurrents:

- Planned Act
  - Act of Financial Transaction
    - Act of Transferring
      - Act of Donating
      - Act of Funding
      - Act of Financial Deposit
      - Act of Financial Withdrawal
      - Act of Loaning
      - Act of Repayment
    - Act of Exchanging
      - Act of Trading
        - Act of Direct Trading
        - Act of Indirect Trading
          - Act of Buying
          - Act of Remuneration
          - Act of Renting

Financial Continuants:

- Quality
  - Financial Value
    - Financial Value of Property
- Role
  - Financial Instrument Role
    - Medium of Exchange Role
    - Equity Instrument Role
    - Bond Role

- Material Entity
  - Financial Instrument
    - Medium of Exchange
      - Portion of Money
        - Portion of Currency
          - Banknote
          - Coin
          - Electronic Currency
    - Stock
      - Common Stock
      - Electronic Stock
      - Preferred Stock
      - Stock Certificate
    - Bond

Bond Certificate
Electronic Bond